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Ohio Livestock Trends: 1950/73—Projections for 1985

Service Report 147

FARMER COOPERATIVE SERVICE • U.S. DEPARTMENT OF AGRICULTURE

Duplicate



PREFACE

A study of livestock trends in Ohio was requested from Farmer Cooperative Service by the board of directors of a livestock marketing cooperative in Ohio. The directors were concerned about the future of the livestock industry in Ohio and how their cooperative could serve its producer members. This study is published for the benefit of all producers and others interested in Ohio's future in the livestock industry.

The purpose of this study is to assist producers, cooperatives, and other firms make long-range plans for 1985. These plans are developed in part from past trends projected into the future. The study analyzes past trends in the use of land and the production of corn and soybeans since these inputs are essential to a viable livestock-meat industry. The study looks at trends in the production of cattle, hogs, and sheep. Finally, it reviews the trends for marketing, slaughtering, and processing livestock produced in Ohio.

Trends are analyzed for 1950-73 and projected to 1985. For the most part, the analysis is conducted on a county-by-county basis to show shifts in production and marketing within the State as well as for the State as a whole. No attempt is made to estimate production cycles about the trend line from 1973 to 1985 because the basic objective is to show the direction of livestock production and to estimate the level of production expected by 1985.

Three basic sources of livestock data are referred to in the text and footnotes in abbreviated form as follows:

Livestock and Meat Statistics	U.S. Department of Agriculture. Livestock and Meat Statistics. Stat. Bul. No. 522, 1972 and annual supplements.
Census of Agriculture	U.S. Department of Commerce, Bureau of the Census. Census of Agriculture, 1950, 1954, 1959, 1964, 1969.
Ohio Agricultural Statistics	Ohio Crop Reporting Service. Ohio Agricultural Statistics, 1970, 1971, 1972, 1973. Annual Report.

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HIGHLIGHTS

The Ohio beef cow herd has been expanding while the dairy cow herd has declined. These trends are expected to continue, with the beef herd expanding to 465,000 head by 1985, and the dairy cow herd leveling off at 330,000 head. Cattle feeding will remain at about 400,000 head a year, and Ohio will change from a net importer to a net exporter of feeder cattle by 1985.

Beef consumption in the United States rose from 85 pounds per person in 1960 to 116 pounds in 1972. By 1985, consumption per person is expected to rise to about 145 pounds (carcass weight).

Swine production has trended down in Ohio. From 1950 to 1973, the number of hogs and pigs on farms declined about 35 percent. By 1985, it is expected to decline 20 percent more. Farrow-to-finish is the most common type of swine enterprise, accounting for 83 percent of sow farrowings in 1969.

The long-term outlook for sheep and lamb production in Ohio is uncertain. Lamb-to-beef price ratios have recently improved, but the decline in production may continue.

Ohio livestock producers' marketing needs are served by 44 auction markets and 250 dealers and dealer markets. Within Ohio there are also 4 packer buying stations, 36 federally inspected packing plants, and 10 major State inspected plants.

Ohio livestock producers need to take the initiative in revitalizing their industry by encouraging more hog production and cattle feeding and by implementing more efficient production-marketing-processing systems. The cooperative type of organization could be used effectively by Ohio producers to accomplish their objectives.

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OHIO LIVESTOCK TRENDS:
1950-1973, ~~and~~ PROJECTIONS FOR 1985

Δ/ΔFCΔby

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Agricultural Economist

INTRODUCTION

Livestock production is a vital part of the agricultural economy in Ohio, accounting for 51 percent of farmers' cash receipts in 1973: 15 percent from cattle and calves, 12 percent from hogs and pigs, 0.5 percent from sheep and lambs, and 23 percent from livestock products such as milk. 1/

The livestock-meat industry has an important role in the total economy of Ohio. The industry includes not only several kinds of farm production activities but also slaughter-processing, feed and equipment supply, marketing, transportation, veterinary, and financing activities. The industry represents an investment of several billion dollars and employment of thousands of workers.

LAND USE

Land is an important input for livestock production. While the use of confinement facilities reduces the need for land on which to manage livestock, land is still very necessary for feed production. Increasing urbanization competes with grain and livestock production for land, labor, and capital and must be taken into account in predicting the future of livestock production in Ohio.

Land in Farms and Cropland Harvested

Acres of land in Ohio farms decreased 18.4 percent from 1950 to 1969, compared with a 4.2-percent decline for land in farms in the entire United States. Part of the decrease was due to a change in the definition of a farm between the 1954 and 1959 Censuses of Agriculture, from "3 or more acres" to "10 or more acres." 2/ Other reasons for the decline are the development of housing sites, industrial sites, highways, and lakes and reservoirs.

Acres of cropland harvested in Ohio declined almost as rapidly as total land in farms. The decline was 17.3 percent in Ohio during 1950-69, compared with 4.8 percent for the United States. 3/ The decline was prompted largely by increasing grain yields per acre and decreasing hay

1/ Derived from 1973 Ohio Agricultural Statistics.

2/ 1950, 1954, 1959, 1964, and 1969 Censuses of Agriculture.

3/ See footnote 1.

production. While there was a significant decline in cropland harvested in 1950-69, a special survey of Ohio shows no decrease in available cropland from 1958 to 1967. In fact, available cropland actually increased by 0.9 percent in that period. 4/

Figure 1 shows the percentage of land in farms in each county. For 23 of the 88 counties in Ohio, acres in farms increased from 1954 to 1969. Although not shown in figure 1, only five of these counties (Auglaize, Marion, Paulding, Putnam, and VanWert) showed an increase in the acres of cropland harvested.

Effect of Urbanization on Agricultural Production

Increasing population is the underlying determinant of increasing urban land uses. From 1950 to 1970, population in Ohio increased from 7.95 million to 10.66 million people--an increase of 34 percent. U.S. population also increased 34 percent in the same period. 5/ Increasing urbanization could have a significant effect upon agricultural production in Ohio. However, agricultural enterprises are profitable and effectively compete with nonagricultural enterprises for the use of land, labor, and capital.

Agriculture's weakest position may very well be in the competition for land. Extensive use of land in most agricultural enterprises means that producers cannot afford to pay as much for land as nonagricultural users. However, it is important to keep things in perspective. Although urban and other nonagricultural land uses more than doubled during 1940-60, they still accounted for only 11.8 percent of land in Ohio in 1960. While more current data are not available, it is evident that more land has been diverted from agricultural use to nonagricultural uses as population has increased 12 to 15 percent since 1960. But Ohio still has an abundance of land for agricultural enterprises.

To a certain extent, capital, labor, and new technologies can be used as substitutes for land. In Wayne County, for example, population and agricultural production have both increased. During 1960-70, Wayne County's population increased by 15.4 percent, 6/ land in farms decreased by 5.5 percent, and cropland harvested by 10.8 percent; but corn production increased by 14.1 percent, soybean production by 155.5 percent, cattle numbers by 7.1 percent, and hog numbers by 13.8 percent. 7/

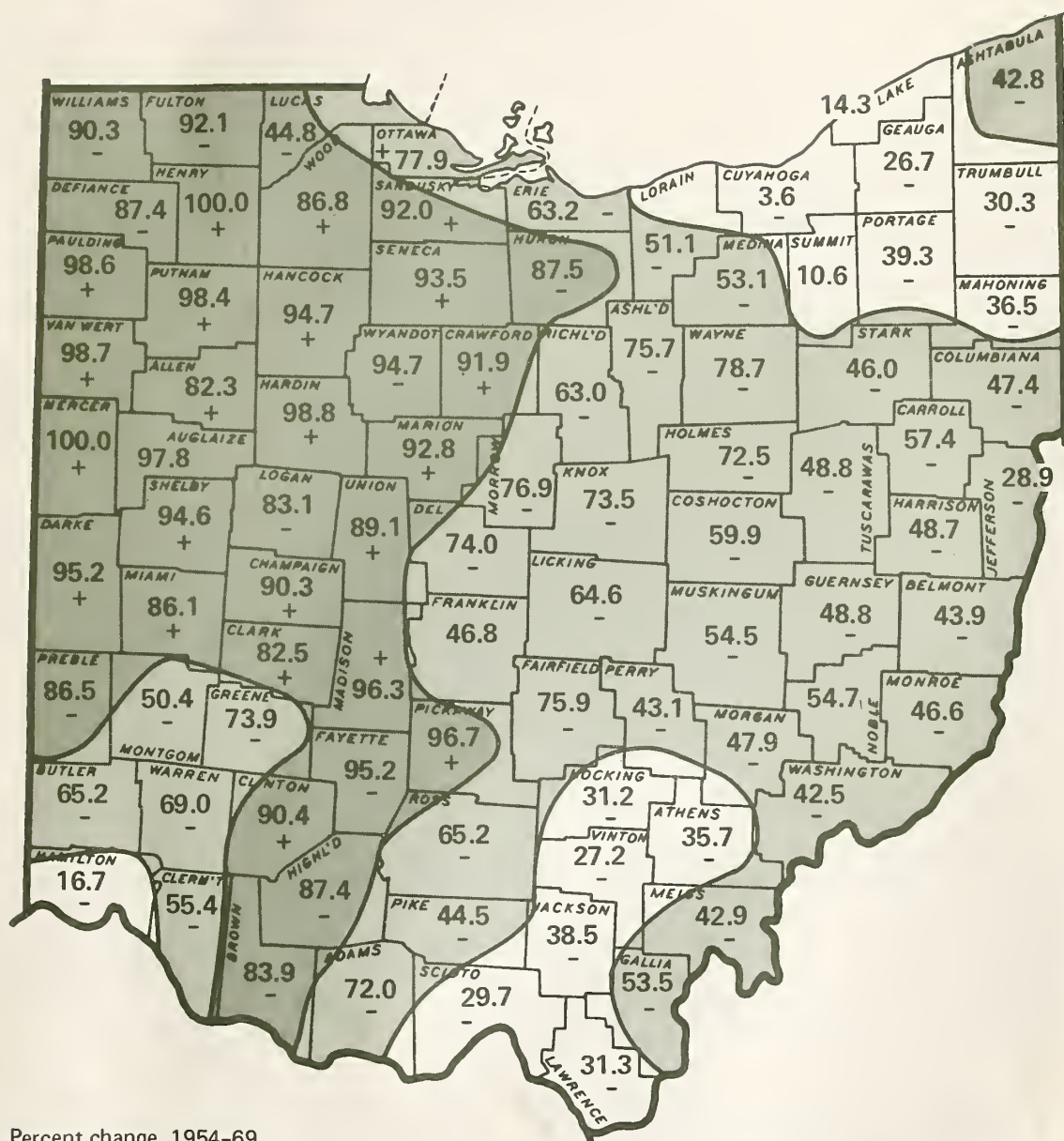
4/ The Ohio Soil and Water Conservation Needs Committee. Ohio Soil and Water Conservation Needs Inventory. Columbus, Ohio, 1971, pp. 13-15.

5/ U.S. Bureau of the Census.

6/ Rand McNally. 1973 Commercial Atlas and Marketing Guide.

7/ 1959 and 1969 Censuses of Agriculture.

Fig. 1--Percent of land in farms, Ohio, 1969



Percent change, 1954-69

+ Increase

- Decrease

Ohio average: -14.4%

Percent of land in farms

Greater than 80%

40% to 80%

Less than 40%

Ohio average: 65.2%

Source: 1969 Census of Agriculture.

Figure 2 highlights the urban centers in Ohio by indicating all towns and cities with more than 30,000 population in 1970.

Grain Production

Over the past several years, the trend in corn and soybean production in Ohio has been upward--the same direction as for the United States as a whole. In the 16-year period 1954-69, corn production in Ohio increased from 204.6 million to 233.7 million bushels--an increase of 14.2 percent. At the same time, increasing yields allowed corn acreage to be reduced by 679,000 acres--a reduction of 20.0 percent. Many of the acres taken out of corn production and production of other crops have gone into soybean production. From 1954 to 1969, soybean acreage increased by 1,306,000 acres--an increase of 120.8 percent. Soybean production increased from 26.0 million to 69.9 million bushels, or 168.7 percent (table 1).

Production of corn and soybean has continued to increase in Ohio since the 1969 census. Soybean acreage increased 622,000 acres from 1969 to 1972 and corn acreage increased 385,000 acres.

The concentration of corn and soybean production by county increases as one moves from eastern Ohio to western Ohio (figs. 3 and 4), and this concentration is increasing over time. Darke, Wood, and Fulton are the three top corn producing counties--each produced more than 8 million bushels in 1972. VanWert, Wood, and Hancock Counties are the three top soybean producing counties, each producing more than 7 million bushels.

SWINE PRODUCTION AND SLAUGHTER

Current Location and Extent of Swine Enterprises

On December 1, 1972, Ohio producers had 2,320,000 hogs and pigs on their farms. The density of hogs and pigs by county is shown in figure 5. In general, the concentration of swine production increases as one moves from eastern Ohio to western Ohio. The westernmost counties of Mercer, Darke, and Preble, plus the southwestern counties of Greene, Fayette, Pickaway, Clinton, and Highland each had more than 70,000 head on farms, compared with an average of 26,000 for all Ohio counties.

In developing a swine marketing program it is important to identify and locate the basic types of swine production enterprises: feeder pig production, pig finishing, and farrow-to-finish. While it is common for a single farm to engage in more than one enterprise, each type of enterprise requires somewhat different marketing services. Little information is readily available to indicate where the different types of swine production predominate, but some calculations can be made to estimate the location of each.

In general, the farrow-to-finish enterprise is still the most common in Ohio. In 1969, only about 17 percent of all farrowings accounted for

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Table 1--Corn and soybean production and acreage, Ohio, selected years, 1954-72, and percent change, 1954-69

Year	Corn	Soybeans	Corn	Soybeans
	<u>Bushels</u>		<u>Acres</u>	
1954	204,606,856	26,033,898	3,383,903	1,081,243
1959	212,954,590	35,430,327	3,417,735	1,419,014
1964	193,895,000	39,679,500	3,011,350	1,755,050
1969	233,709,541	69,940,637	2,705,447	2,387,587
% change, 1954-69	+ 14.2	+ 168.7	- 20.0	+ 120.8
1972	284,280,000	81,270,000	3,090,000	3,010,000

Source: 1954, 1959, 1964, and 1969 Censuses of Agriculture; 1972 Ohio Agricultural Statistics.

Fig. 3--Corn production, Ohio, 1972

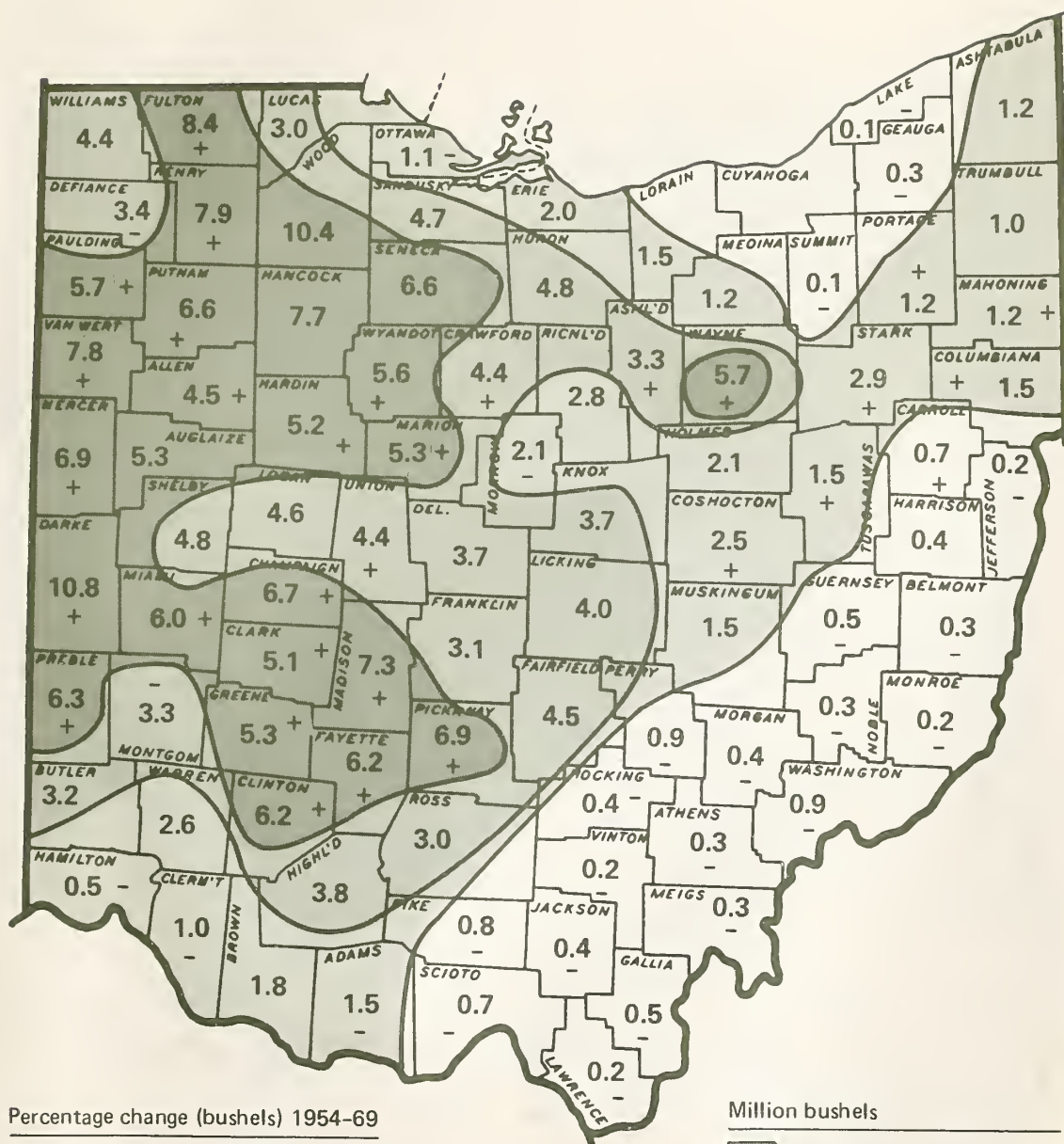
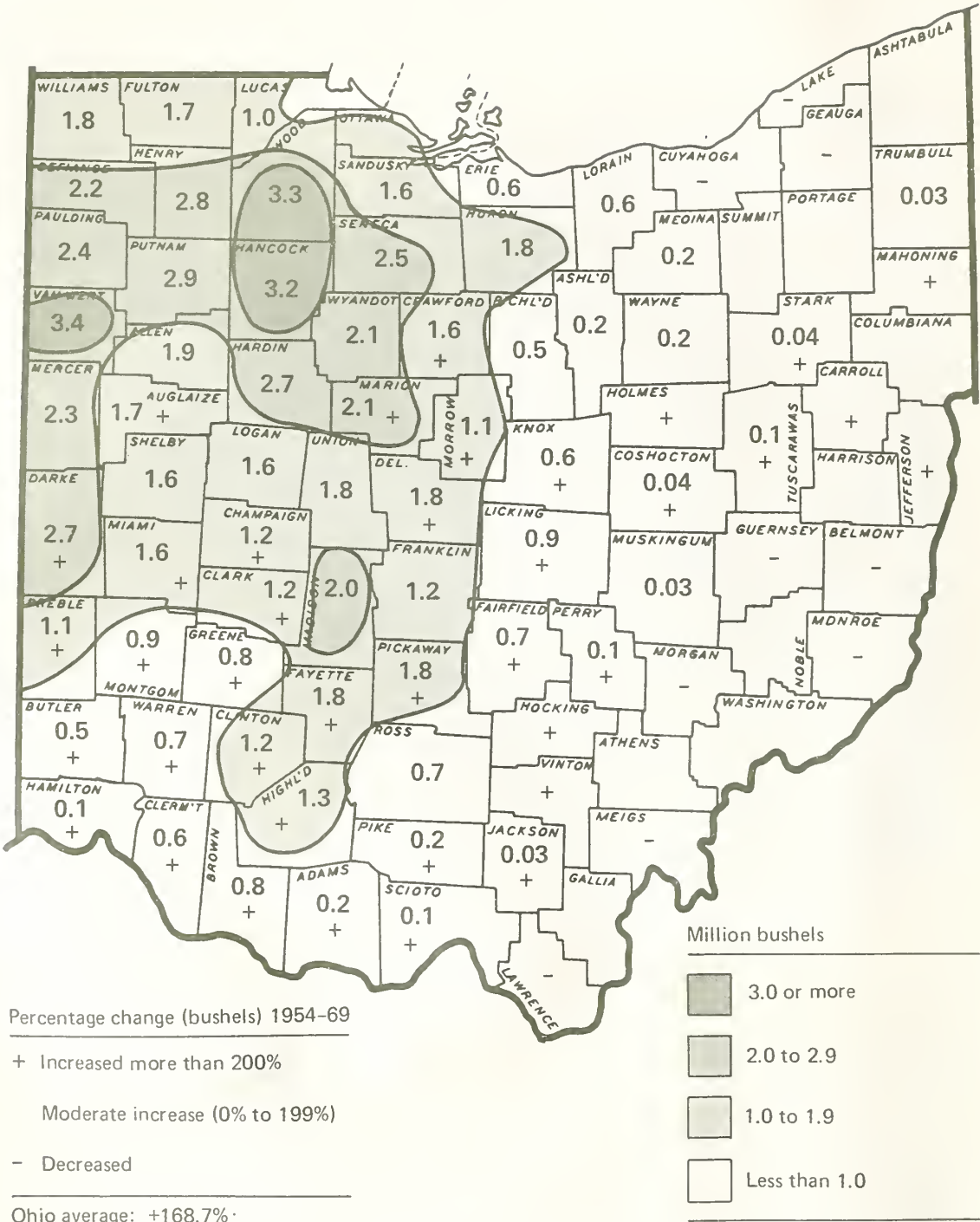
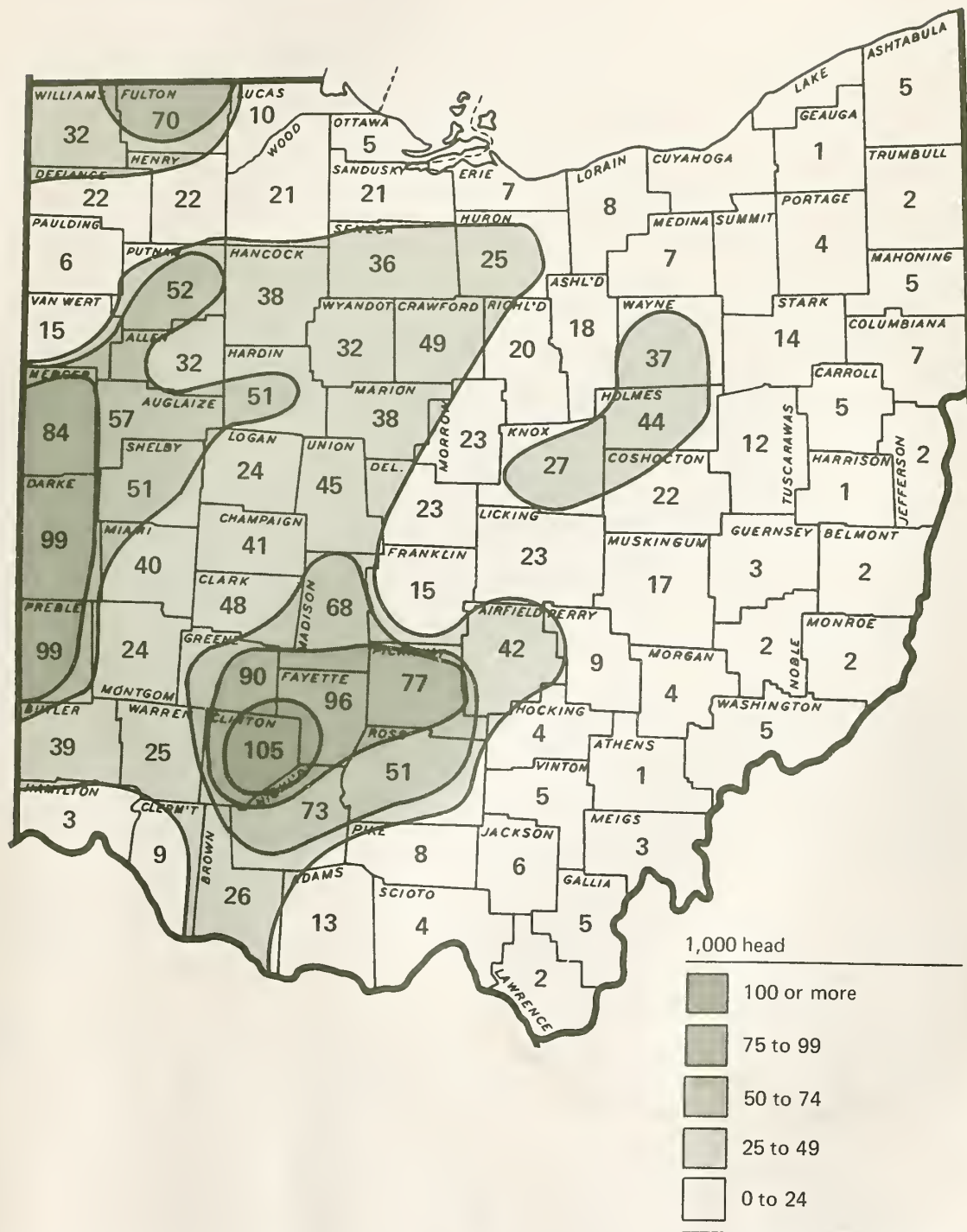


Fig. 4--Soybean production, Ohio, 1972



Source: 1954 and 1969 Censuses of Agriculture;
1972 Ohio Agricultural Statistics.

Fig. 5--Hogs and pigs on farms, Ohio, December 1, 1972



Source: 1973 Ohio Agricultural Statistics

the number of feeder pigs that were sold. 8/ The remaining 83 percent of farrowings were for pigs farrowed and finished on the same farm. Farrow-to-finish operations are proportionally less common in the eastern third of Ohio where more than 30 percent of all farrowings go into commercial feeder pig production. Some of these counties run as high as 60 percent or more (fig. 6). In the western third of the State, where most of the swine production occurs, the percentage of farrowings used for feeder pig sales is generally less than 20. But because of the greater concentration of swine production in western Ohio, the greatest number of feeder pigs are produced there. Most of the counties that sold more than 10,000 feeder pigs in 1969 were western counties. The western counties also had larger sales per farm, averaging 144 feeder pigs per farm. The eastern counties, on the other hand, sold an average of only 111 pigs per farm.

Ironically, Holmes County in eastern Ohio sold only 91 pigs per farm, but is actually the largest feeder pig producing county, selling 34,000 in 1969. Adjoining Wayne County sold 21,000. The only other counties selling more than 20,000 were Darke and Mercer on the western border. All together, Ohio producers sold 610,000 feeder pigs in 1969. 9/

Most of the feeder pigs farrowed in Ohio are also finished in Ohio. In 1973, only 7,000 pigs were exported. In contrast, Ohio producers imported 145,000 feeder pigs. 10/ Most of these pigs were probably fed in the western counties where finishing enterprises are relatively more common than in eastern counties, which tend to specialize more in feeder pig production.

Counties with a relatively large proportion of finishing enterprises are identified as those having a relatively large number of hogs sold per farrowing because they are assumed to finish more pigs than they farrow. The entire State sold 7.6 slaughter hogs per farrowing in 1969. 11/ Counties selling 8.2 or more slaughter hogs per farrowing are highlighted as centers of pig finishing in figure 7. Fulton County in northwestern Ohio sold 16.1 slaughter hogs per farrowing.

The total number of hogs finished in both farrow-to-finish enterprises and in more specialized feeding enterprises totaled 3,493,600 head in 1969. The heaviest concentration of sales was in the more western counties (fig. 7).

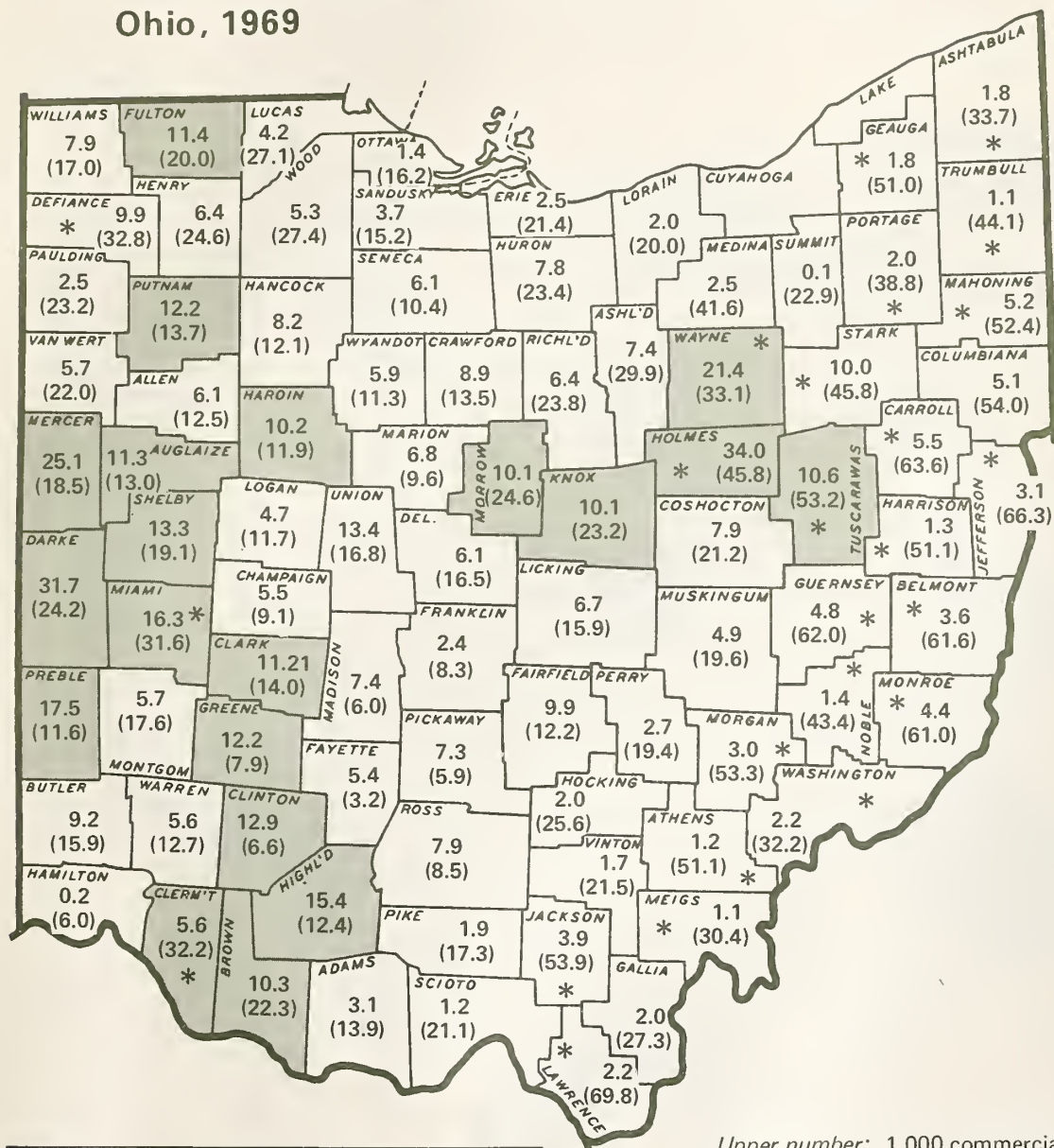
8/ Estimated by dividing the number of feeder pigs sold by an assumed 8 pigs per litter and by taking the result as a percent of all sows farrowing. (Source: 1969 Census of Agriculture.)

9/ 1969 Census of Agriculture.

10/ Ohio Crop Reporting Service and Statistical Reporting Service, U.S. Department of Agriculture.

11/ Estimated from 1969 Census of Agriculture by subtracting the number of feeder pigs sold from the number of hogs and pigs sold and dividing by the number of farrowings.

Fig. 6--Commercial feeder pig production: number of head sold per county and percent of farrowings, Ohio, 1969



Counties selling more than 10,000 pigs per year

* Counties with 30% or more farrowings for commercial feeder pig production

Upper number: 1,000 commercial feeder pigs sold

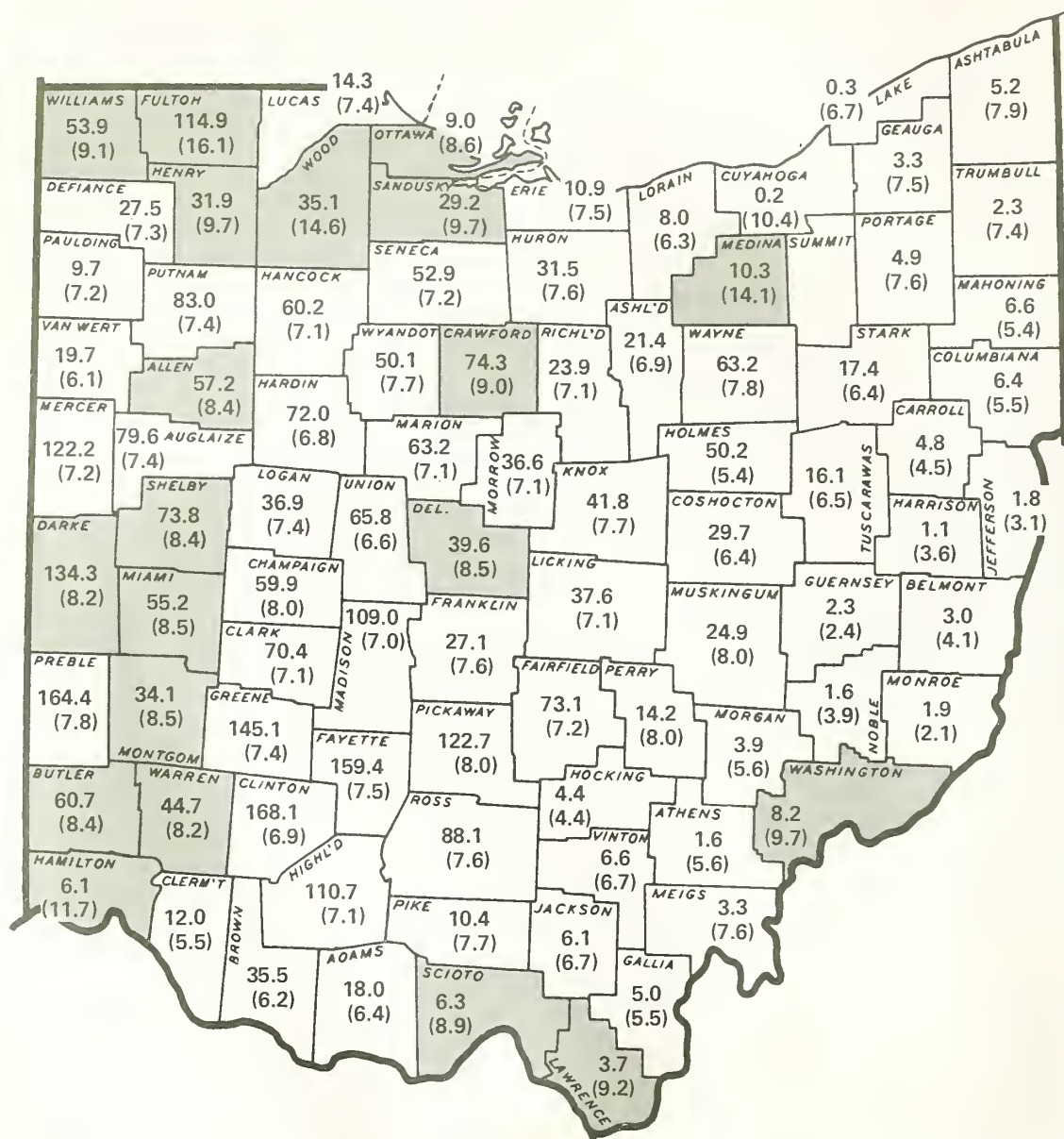
Ohio total: 610,000 head

Lower number: Percent of farrowings for commercial feeder pig production

Source: Derived from 1969 Census of Agriculture

Ohio average: 17%

Fig. 7--Slaughter hogs sold and head sold per farrowing,
Ohio, 1969



■ Pig finishing counties (8.2 or more
slaughter hogs per farrowing)

Upper number: 1,000 slaughter hogs sold
Ohio total: 3,493,600 head

Lower number: Number of head sold per farrowing
Ohio average: 7.6 head

By 1973, hog and pig production had declined slightly from the 1969 census period. Slaughter hog sales were estimated to be 3,270,000 head and feeder pig sales, 571,000 head. These estimates were made by using the 1969 ratios of hog and pig inventory to slaughter hog sales and inventory to feeder pig sales. The ratios ignore a possible increase in the proportion of feeder pigs produced since 1969. County estimates are shown in figure 8.

A summary of the above evidence shows that: (1) all three types of hog production enterprises are more common in western counties than in eastern ones; (2) farrow-to-finish is still the most common type of enterprise in almost every county except a few eastern ones where more than 50 percent of the farrowings are for commercial feeder pig production and in Fulton County where finishing seems to predominate; (3) in areas where farrowing and finishing occur on separate farms, commercial pig production is a more common enterprise in eastern Ohio while finishing is more common in western Ohio; and (4) Ohio is a net importer of about 140,000 feeder pigs per year.

Production Trends and Projections

Hog production in Ohio and the United States increases and decreases from one year to the next, giving rise to a distinctive production cycle. While the cycle will definitely influence annual financial statements of production, marketing, slaughtering, and other firms in the industry, long-term planning and investment decisions must be gaged to the basic trend underlying the cycle. Because cycles are 3 to 5 years in length, two or more complete cycles--a period of about 10 years--must be observed to see the trend in hog production.

The U.S. cycle and trend for hog slaughter closely parallel hog production because imports and exports of live hogs are relatively insignificant. Consequently, the number of hogs slaughtered has become the best available indicator of hog production because of double counting and other problems inherent in such data as "marketings," "sales," and "inventory," as used by the U.S. Department of Agriculture (USDA) and the Bureau of the Census. However, for individual States like Ohio, production and slaughter do not have to move together. Individual States import or export large numbers of live hogs. Therefore production and slaughter of hogs in Ohio will be analyzed separately.

The cycle and trend for hog slaughter in the United States and Ohio are shown in figure 9. According to the trend line, U.S. hog slaughter increased from 69,829,000 head in 1950 to 86,591,000 in 1972. That is an annual increase of 762,000 head, or roughly 1 percent per year. Continuing the trend line to 1985 gives a projected U.S. hog slaughter of 96,496,000 head. This projection is consistent with an average per

[illegible]

* Less than 1,000 head

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capita consumption of 67.5 (carcass) pounds of pork per year, 12/ for an estimated resident population of 235,200,000 people. 13/

The number of hogs slaughtered in Ohio increased from 1950 to 1967. During 1950-65, the rate of increase in Ohio was greater than that of the United States, so that the percent of hogs slaughtered in Ohio increased from 5.5 percent to 6.4 percent of U.S. slaughter. Since 1967, however, the number of hogs slaughtered in Ohio has declined, while U.S. slaughter has continued to rise. Because Ohio packers continue to bring in hogs from neighboring States, the decline in hog slaughter in Ohio has lagged behind a decline in hog production which began in the early 1950's. The decline in production is evidenced by a decline in marketings (table 2), sales, and hog and pig inventories (fig. 10).

"Marketings" data are compiled annually by the USDA's Statistical Reporting Service (SRS) and include sales of all slaughter hogs plus feeder pigs sold to farmers in other States but do not include sales of feeder pigs between Ohio farmers. Because Ohio is a net importer of feeder pigs, marketings is a fairly good indicator of hogs sold for slaughter. Table 2 shows marketings from 1950 to 1973. The peak in Ohio marketings occurred in 1952, followed by a general decline to 1973. Almost every succeeding peak in the marketings cycle for Ohio after 1952 (that is, 1956, 1959, 1963, and 1971) was lower than the one before; whereas, for the United States each succeeding peak (1952, 1956, 1959, 1963, 1969, and 1971) in the cycle was higher than the one before. The trend in marketings for Ohio has been downward, while that of the United States has been upward. Consequently, Ohio's share of marketings declined from 6.8 percent of U.S. marketings in 1953 to 3.7 percent in 1973.

The marketings data cannot be used for comparing production changes in different regions of Ohio because the data are not available on a county basis. The latest agricultural census (1969) provides county data on "sales" of hogs and pigs and also separates slaughter hogs from feeder pigs. Trends are somewhat difficult to establish from these data, however, because in all previous census years, sales of hogs and pigs were combined. Consequently, earlier censuses included double counting, as some animals were sold once as feeder pigs and again as slaughter hogs. As a result, sales of hogs and pigs would be higher in counties where many of the feeder pig production and finishing operations were under separate ownership than in counties where a relatively large proportion of the enterprises were the farrow-to-finish type and intermediate sales were minimized.

12/ Average consumption for 1968-72 was 67.6 pounds per person (Source: USDA Livestock and Meat Statistics).

13/ U.S. Department of Commerce, Bureau of the Census. Current Population Reports: Population Estimates and Projections. Series P 25, No. 493, Dec. 1972.

Table 2--Marketings of hogs and pigs, Ohio and United States,
1950-73

Year	United States	Ohio	Ohio as percent of United States
	-----1,000 head-----		Percent
1950	72,673	4,423	6.1
1951	79,142	4,846	6.1
1952	80,448	4,937	6.1
1953	68,572	4,671	6.8
1954	66,012	4,423	6.7
1955	75,400	4,146	5.5
1956	79,091	4,385	5.5
1957	74,087	4,213	5.7
1958	73,419	3,817	5.2
1959	84,379	4,085	4.8
1960	79,831	4,064	5.1
1961	80,326	4,021	5.0
1962	81,743	4,102	5.0
1963	86,163	4,204	4.9
1964	86,086	4,178	4.9
1965	78,127	3,562	4.6
1966	75,761	3,571	4.7
1967	85,256	3,819	4.5
1968	87,726	3,835	4.4
1969	88,074	3,844	4.4
1970	87,422	3,887	4.4
1971	99,586	4,145	4.2
1972	90,486	3,754	4.1
1973	82,317	3,039	3.7

Source: USDA Livestock and Meat Statistics; Agricultural Statistics.

Fig. 9--Commercial hog slaughter, Ohio and U.S., 1950-73, and projections for 1985.

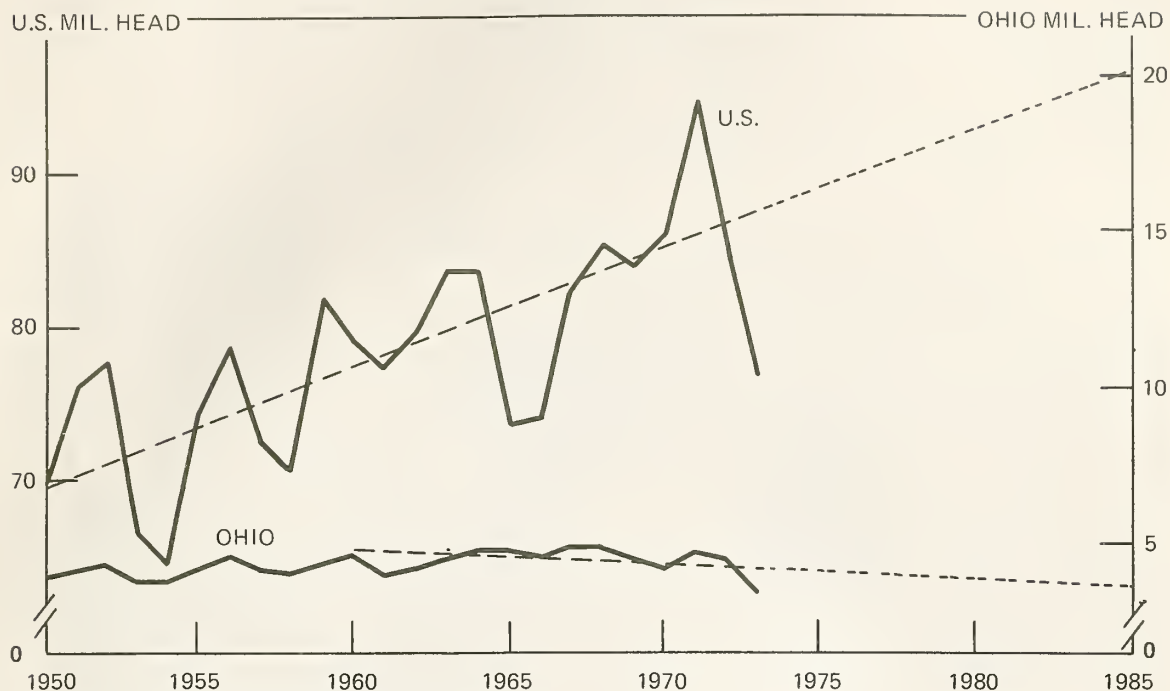
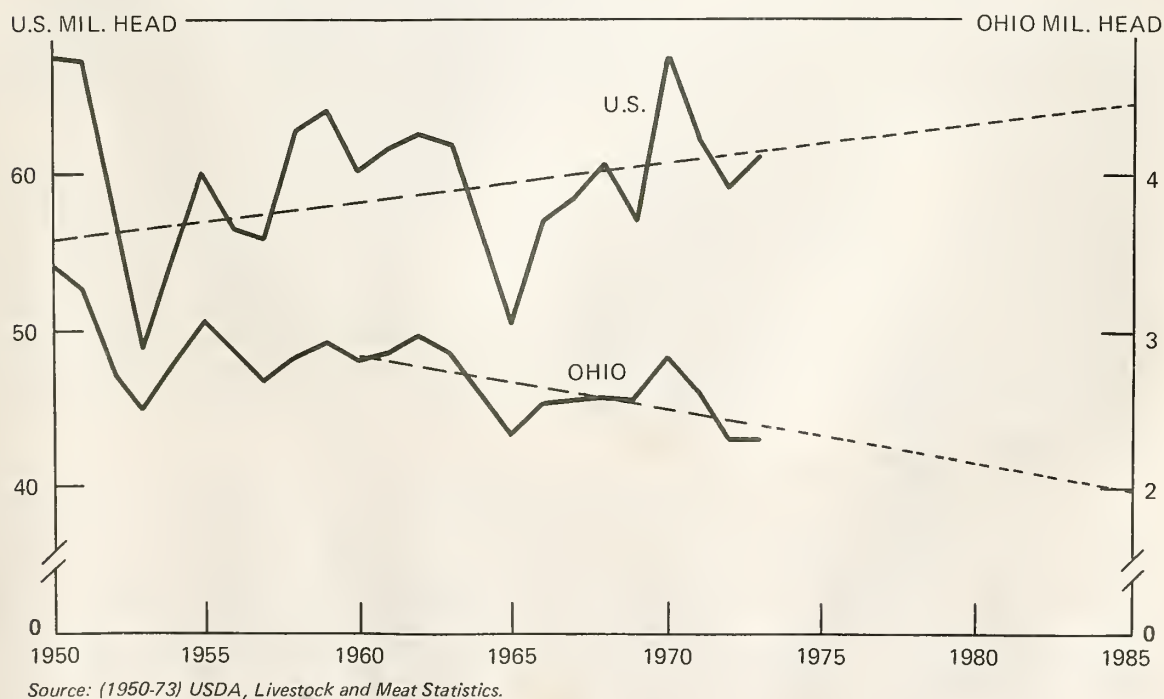


Fig. 10--Hogs and pigs on farms, Ohio and U.S., December 1, 1950-73, and projections to 1984.



Another source of data to show changes in swine production is the "inventory" of all hogs and pigs on farms gathered annually by SRS and every 5 years by the Bureau of the Census. Both sets of inventory data are available by county. Inventory numbers provide an index of overall production that is relatively unaffected by shifts from farrow-to-finish enterprises to feeder pig and finishing types of enterprises. The inventory data are used below to estimate 1985 production for Ohio and for each county by using established ratios of the number of hogs and pigs on farms to the numbers of hogs and pigs sold.

The hog and pig inventory for Ohio follows the same inventory cycle as the national inventory except that the Ohio inventory has trended downward while that of the United States has been upward (fig. 10). Ohio's share of the national inventory slowly but steadily declined from 5.2 percent in 1950 to 3.7 percent in 1973. By December 1, 1984, Ohio is expected to have 2.9 to 3.3 percent or 1,900,000 to 2,100,000 head of a national inventory of 64,600,000 head. The December 1, 1984, inventory will be the basis for production in 1985.

A continuation of the 1953-73 trend line for Ohio inventory shows slightly more than 2,250,000 hogs and pigs in 1984. However, the rate of decline will probably be a little more rapid in 1974-84 than in 1953-63, causing the 1984 inventory to be less than 2,250,000 and closer to the 2,000,000 estimated above (fig. 10).

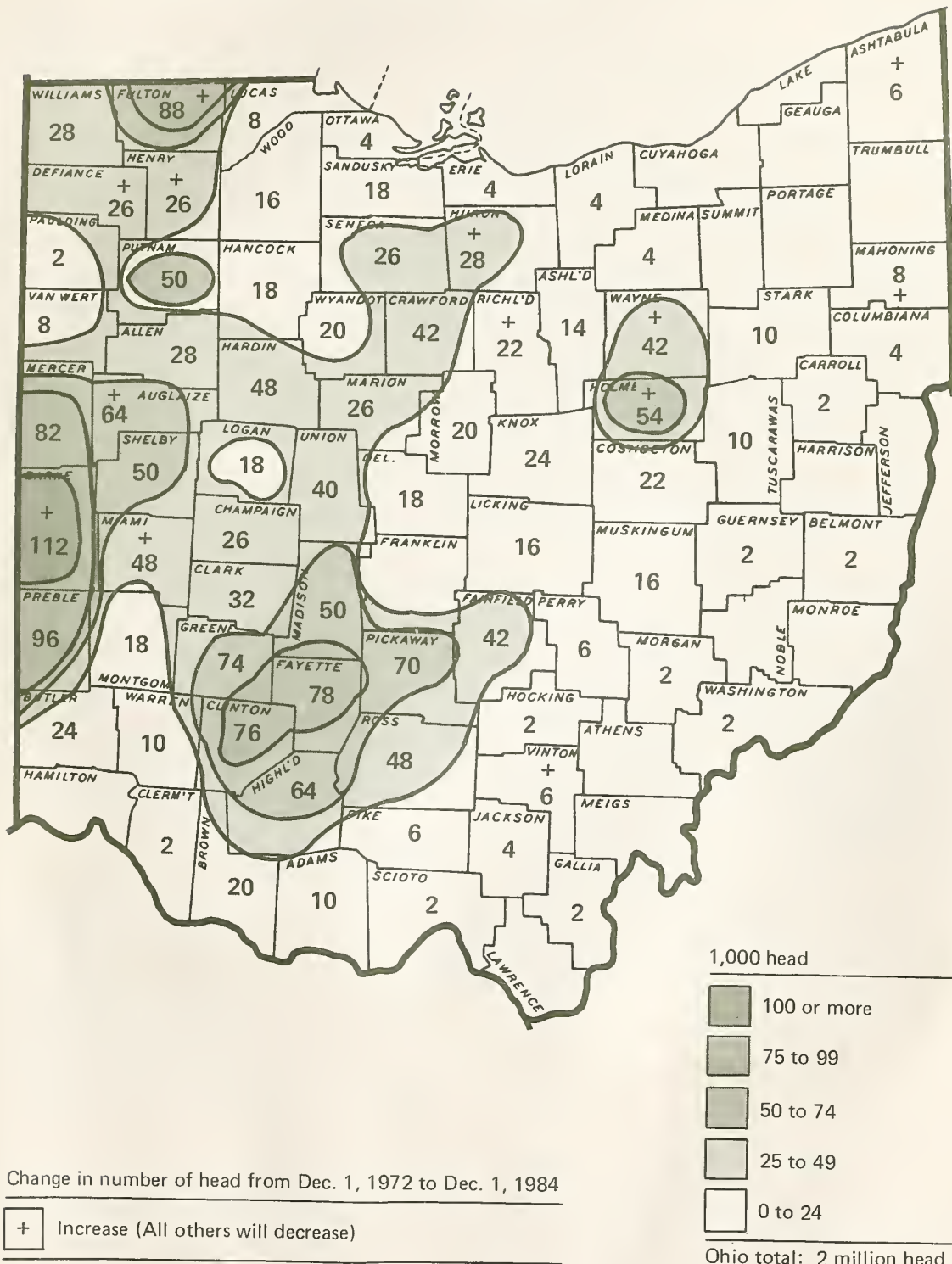
The 1984 inventory of 2 million head is allocated to counties in figure 11. The allocation is based on the trend in each county's share of the total inventory in 1954, 1959, 1964, and 1969 as reported by the census of agriculture.

From 1973 to 1985, hog production in Ohio is expected to become more concentrated in fewer western counties. That is, hogs will be produced less generally and will be found more specifically in western Ohio than in eastern Ohio. Compare figures 5 and 11.

Despite a statewide decline in inventory of 17 percent--from 2,402,000 head in 1972 to 2,000,000 head in 1984--6 western counties will actually increase their inventories. These are Fulton, Defiance, and Henry Counties in the northwest and Auglaize, Darke, and Miami Counties in the west-central area. Holmes, Wayne, Richland, and Huron Counties in central Ohio are also expected to enlarge their inventories during that period. While the eastern counties of Ashtabula, Mahoning, and Vinton may also show some increase, they will remain relatively insignificant.

From the estimated 2-million-head inventory on December 1, 1984, Ohio producers are expected to sell 2,820,000 slaughter hogs and 504,000 feeder pigs in 1985. The county-by-county distribution of that production is shown in figure 12. Estimates are based on the 1969 ratios of total inventory per county to numbers of hogs and numbers of feeder pigs sold. The above procedure for estimating sales assumes that 1969 was a representative year for sales-to-inventory ratios. The

Fig. 11--Hogs and pigs on farms, Ohio,
December 1, 1984, projected



Map of Ohio showing county-level hog slaughter statistics for 1990. The map displays the number of hogs slaughtered (upper number) and the number of hogs slaughtered per 1,000 head of population (lower number) for each county. The Ohio total is 2,820,000 head.

County	Slaughter hog (thousands)	per 1,000 head
Ashtabula	5.8	2.0
Lake	1.0	6.4
Geauga	1.0	6.4
Trumbull	1.0	6.4
Portage	1.0	6.4
Summit	1.0	6.4
Medina	1.0	6.4
Cuyahoga	1.0	6.4
Lorain	1.0	6.4
Erie	1.0	6.4
Sandusky	1.0	6.4
Ottawa	1.0	6.4
Wood	1.0	6.4
Lucas	10.9	3.2
Fulton	141.7	14.1
Williams	42.4	6.4
Henry	31.4	36.0
Defiance	11.3	7.3
Paulding	2.9	0.8
Putnam	71.9	10.6
Hancock	25.5	3.5
Seneca	35.5	4.1
Huron	34.9	8.6
Wayne	62.6	21.2
Stark	11.6	6.7
Maioning	9.1	7.1
Columbiana	3.7	2.9
Carroll	2.0	2.3
Harrison	13.0	8.5
Jefferson	13.0	8.5
Tuscarawas	13.0	8.5
Holmes	61.4	41.6
Coshocton	27.9	7.4
Licking	22.6	4.0
Muskingum	23.1	4.5
Guernsey	1.3	2.7
Belmont	2.4	2.8
Monroe	1.9	1.5
Noble	1.9	1.5
Washington	3.0	0.8
Athens	1.9	0.9
Vinton	7.4	1.9
Meigs	2.0	0.8
Gallia	2.0	0.8
Lawrence	2.8	0.5
Scioto	12.8	2.2
Adams	26.6	7.7
Pike	7.7	1.4
Jackson	4.5	2.9
Perry	63.5	8.7
Fairfield	63.5	8.7
Pickaway	101.9	6.0
Ross	75.4	6.8
Highland	91.8	12.8
Clinton	111.3	8.5
Warren	15.1	1.9
Butler	35.5	5.4
Hamilton	35.5	5.4
Clermont	2.4	1.1
Brown	2.4	1.1
Montgomery	23.5	3.9
Greene	107.6	9.1
Clark	45.2	7.2
Madison	69.2	4.7
Fayette	118.8	4.0
Franklin	27.1	4.2
Delaware	27.1	4.2
Union	54.7	11.1
Logan	25.4	3.2
Shelby	73.1	13.2
Auglaize	89.0	12.6
Mercer	116.4	23.9
Allen	41.0	4.9
Van Wert	9.6	2.8

1,000 head

Upper number: Slaughter hog

Ohio total: 2,820,000 head

Upper number: Slaughter hogs
Ohio total: 2,820,000 head

20

procedure also ignores any trends in converting from farrow-to-finish enterprises to finishing or commercial feeder pig enterprises. While the magnitude of such trends cannot be measured from available data and is not included in the estimates in figure 12, one can expect more specialization in finishing in western counties shown as pig finishing counties in figure 7 and more specialization in commercial feeder pig production in western and eastern counties designated commercial pig producers in figure 6.

Many feeder pigs will continue to come into Ohio from other States, such as Kentucky and Tennessee. However, the number of imports will continue to decline (table 3). Ohio is expected to continue to feed a sufficient number of hogs relative to the number of farrowings, so that the State will not become a significant exporter of feeder pigs by 1985.

Table 3--Feeder pigs shipped into Ohio, by State of origin, 1970-73

State of origin	: 1970	: 1971	: 1972	: 1973
	<u>1,000 head</u>			
Kentucky	134	133	81	65
Tennessee	83	74	58	29
Michigan	21	25	20	18
Indiana	3	8	11	14
Wisconsin	37	25	24	7
Illinois	-	-	5	5
North Carolina	-	-	-	4
Pennsylvania	4	4	5	2
Other	<u>3</u>	<u>3</u>	<u>7</u>	<u>1</u>
Total	285	272	211	145

Source: Ohio Crop Reporting Service.

CATTLE PRODUCTION AND SLAUGHTER

Current Location and Extent of Cattle Enterprises

Ohio farmers participate in four basic cattle enterprises that produce meat animals either directly or as a byproduct: (1) beef cow-calf enterprises provide feeder cattle and cull cows; (2) dairy enterprises provide veal calves, feeder cattle, and cull cows; (3) stocker or backgrounding enterprises; and (4) cattle finishing enterprises.

Milk Cows and Beef Cows

On January 1, 1973, Ohio producers had 434,000 milk cows and 399,000 beef cows. Milk cows are concentrated in an east-west band of central Ohio counties (fig. 13). Wayne County has the most, with 30,000 head. Beef cows are produced in another east-west band of counties somewhat south of the milk cow band (fig. 14). Counties with the most beef cows are Ross, Highland, and Muskingum with 14,000, 13,000, and 12,000 head.

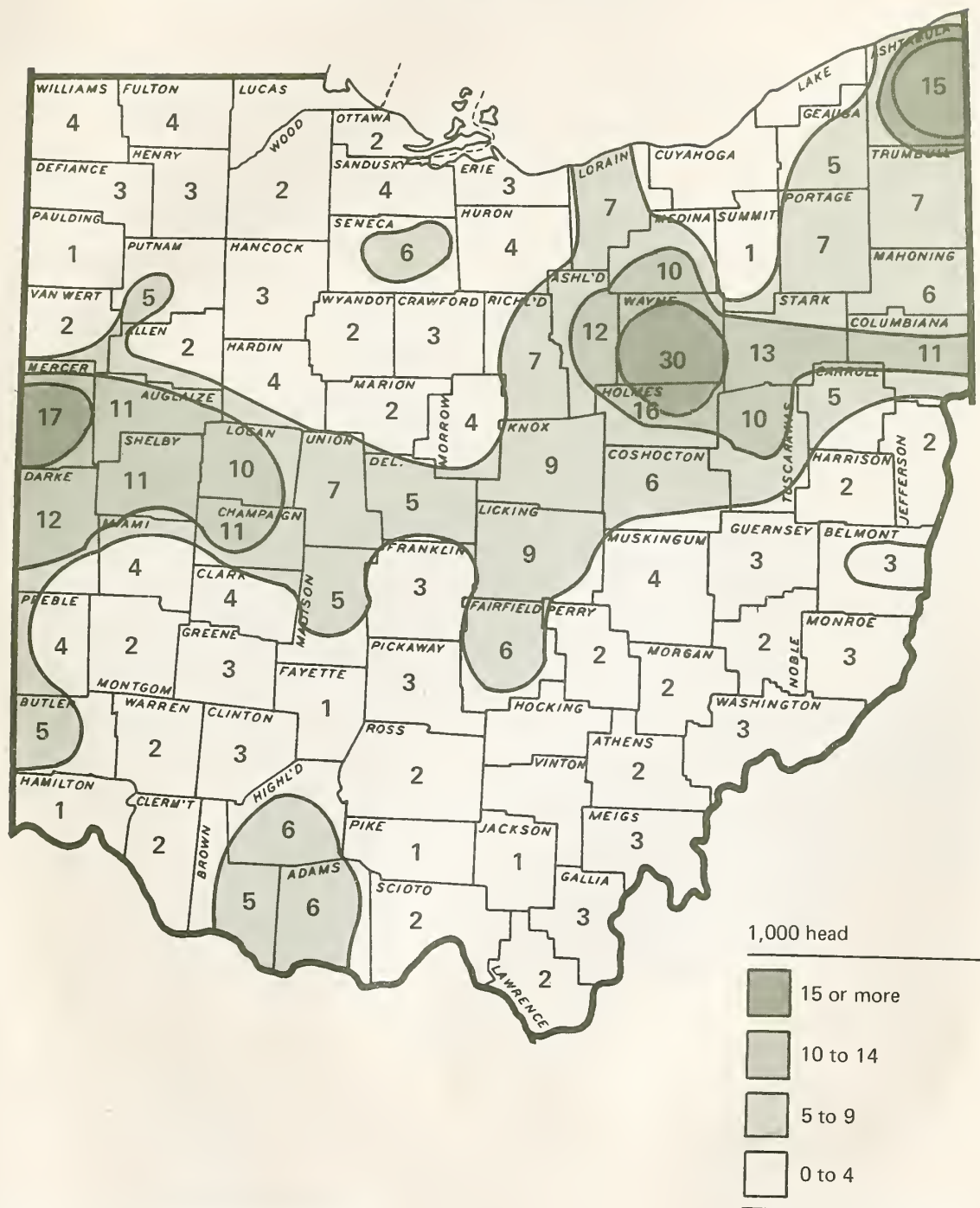
The number of cull cows available for slaughter is estimated by using a culling rate of 20 percent for the dairy cow herd and 12 percent for the beef cow herd ("cows and heifers that have calved"). From 434,000 dairy cows and 399,000 beef cows in inventory on January 1, 1973, cull cows are estimated at 86,800 and 47,900. Declines in both dairy and beef cow numbers from January 1, 1973 to January 1, 1974, made another 22,000 and 12,000 cows available for slaughter in 1973 for a grand total of 168,700 cull cows. The county-by-county supply of cull cows is shown in figure 15. (Adjustment for inventory changes is relatively small for most individual counties and is not included.)

Calves and Yearlings

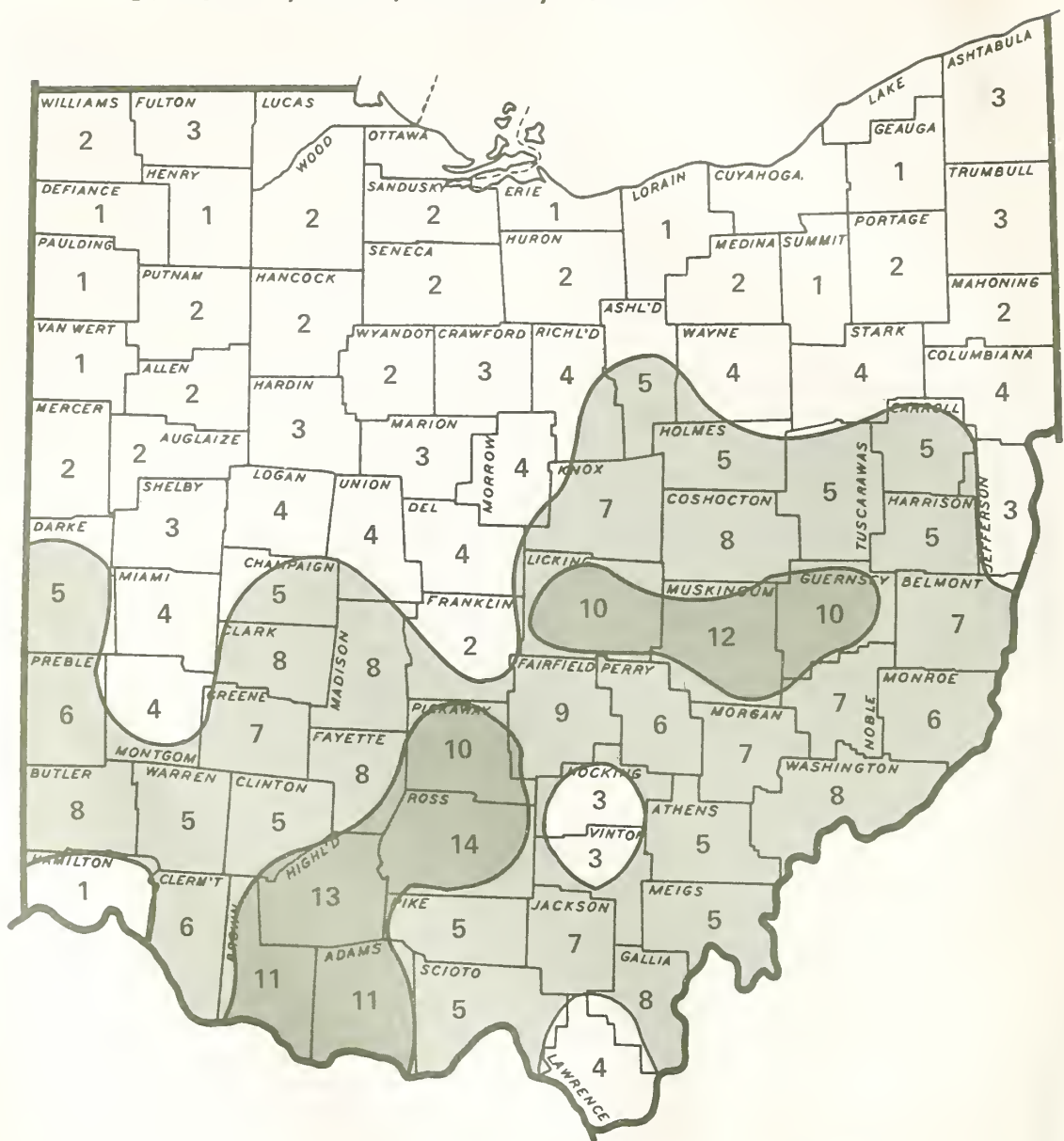
The number of calves and yearlings sold in Ohio in 1973 is more difficult to estimate than the number of cull cows because some calves remain on the farm where they were born and become replacements, stockers, or feeders. Some are sold only once, and others are sold several times. A study ^{14/} of southeastern Ohio cattle producers shows that 20 percent are kept for breeding, 20 percent are kept for feeding (partially or to slaughter weight), and 60 percent are sold.

^{14/} Dennis R. Henderson, Ray H. McWhorter, and Herbert H. Hadley. Feeder Calf Production and Marketing Patterns in Southeast Ohio. Ohio State Univ., July 1974. pp. 16-19. Extension Bul. MM-344.

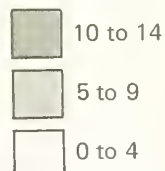
**Fig. 13--Milk cows (including heifers that have calved)
on farms, Ohio, January 1, 1973**



**Beef cows (including heifers that have calved)
on farms, Ohio, January 1, 1973**



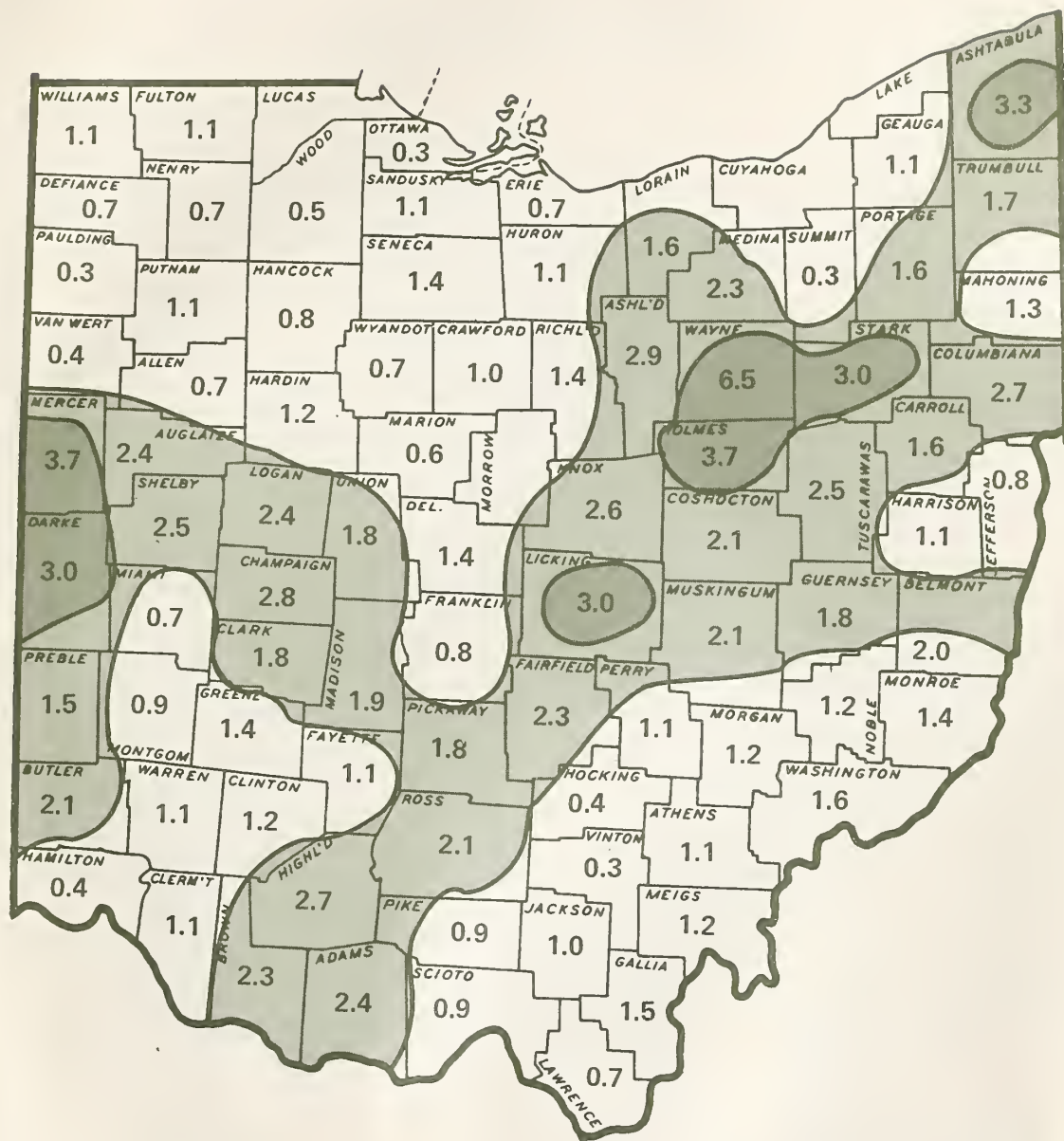
1,000 head



Source: *Livestock and Meat Statistics; 1969 Census of Agriculture.*

Ohio total: 399,000 head

Fig. 15--Estimated cull cow marketings, Ohio, 1973



A rough approximation of sales of calves and yearlings is made below by assuming that on the average each calf is sold once. This means that each of the 60 percent sold must be sold 1.67 times. Such an assumption may underestimate the number of sales of calves and yearlings per year, but gives a general indication of the large volume of sales that do exist.

The number of calves available for sale as veal calves for slaughter, feeder cattle, or replacement cattle can usually be estimated by taking 90 percent of the "cows and heifers that have calved" as reported on January 1 of the next year, less 9 to 10 percent of calves to account for death losses. 15/

There was actually a 90.7 percent calf crop in 1973, but death losses amounted to 12 percent. Ohio's 387,000 beef cows and 412,000 dairy cows (January 1, 1974) produced 351,000 and 374,000 calves, respectively, in 1973. After adjusting for death losses, 309,000 beef calves and 329,000 dairy calves were available for sale (fig. 16).

In addition to the calves born in Ohio, producers imported 250,000 head of feeder cattle in 1973, mostly from Kentucky, Tennessee, and Virginia (table 4). Most of these were probably beef-type cattle. When added to the 351,000 beef calves produced in Ohio, beef-type calves and feeder cattle increased by 601,000 head in 1973. They were used about as follows:

	<u>Head</u>
Placement on feed	382,000
Inventory increases	85,000
Beef cow replacements	46,000
Deaths	42,000
Exports to other States	8,000
Unaccounted for	<u>38,000</u>
Total	601,000

The dairy calves were used about as follows:

	<u>Head</u>
Slaughter or placement on feed	247,000
Dairy cow replacements	82,000
Deaths	<u>45,000</u>
Total	374,000

15/ Average percents during 1969-73. Source: USDA, Livestock and Meat Statistics.

Fig. 16--Calves and yearlings marketed, Ohio, 1973

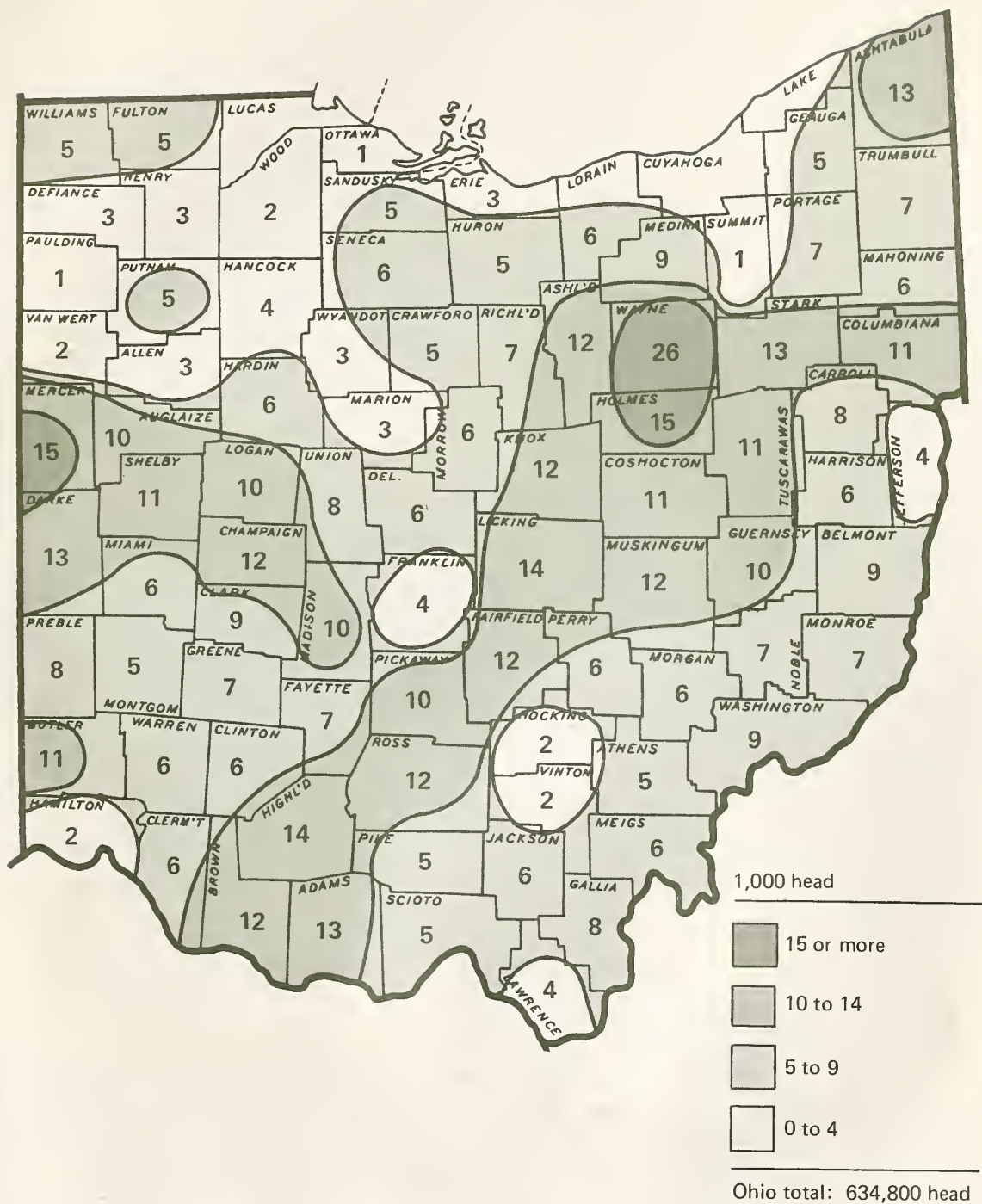


Table 4--Feeder cattle shipped into Ohio, by States of origin, 1971-73

State	:	1971	:	1972	:	1973
<u>1,000 head</u>						
Kentucky		79.0		86.8		75.5
Virginia		77.7		70.4		59.1
Tennessee		55.8		35.0		32.0
West Virginia		17.4		19.7		15.5
North Carolina		20.7		16.4		13.9
South Carolina		12.4		10.5		9.3
Indiana		3.1		9.6		7.4
Mississippi		66.4		7.1		5.5
Illinois		5.3		4.4		5.0
Oklahoma		2.3		5.3		5.0
Other States		<u>63.9</u>		<u>36.8</u>		<u>21.8</u>
Total		344.0		302.0		250.0

Source: Ohio Crop Reporting Service.

Finished Cattle

Ohio producers sold 402,000 head of finished cattle in 1973, but distribution by counties is not readily available. The latest information on fed cattle sales by counties is the 1964 Census of Agriculture. The census was conducted 10 years ago, but will have to suffice for this report. Assuming that the percent of cattle fed in each county is the same as in 1964, the total number of fed cattle marketed in 1973 is allocated to each county and presented in figure 17 to show where cattle feeding is concentrated. Fed cattle sales were heaviest in Fulton County in northwest Ohio with 36,000 head. Nearby Wood County sold 17,000 head. Another area of concentrated cattle feeding is the southwestern counties of Miami, Clark, Madison, and Pickaway.

Production Trends and Projections

National Supply and Demand

Rate of production of beef in the United States has been rising faster than the population rate increase, thereby allowing Americans to enjoy increasing quantities of beef per person. Rapidly rising levels of income per person and increasing demand for beef have caused prices of beef to rise at the same time that production has increased.

The trend in commercial cattle slaughter for the United States and for Ohio is shown in figure 18. U.S. production and slaughter have almost doubled--from 17,901,000 head slaughtered in 1950 to 33,626,000 head in 1973. Continuing the trend line to 1985 gives an annual

Fig. 17--Fed cattle marketed, Ohio, 1973

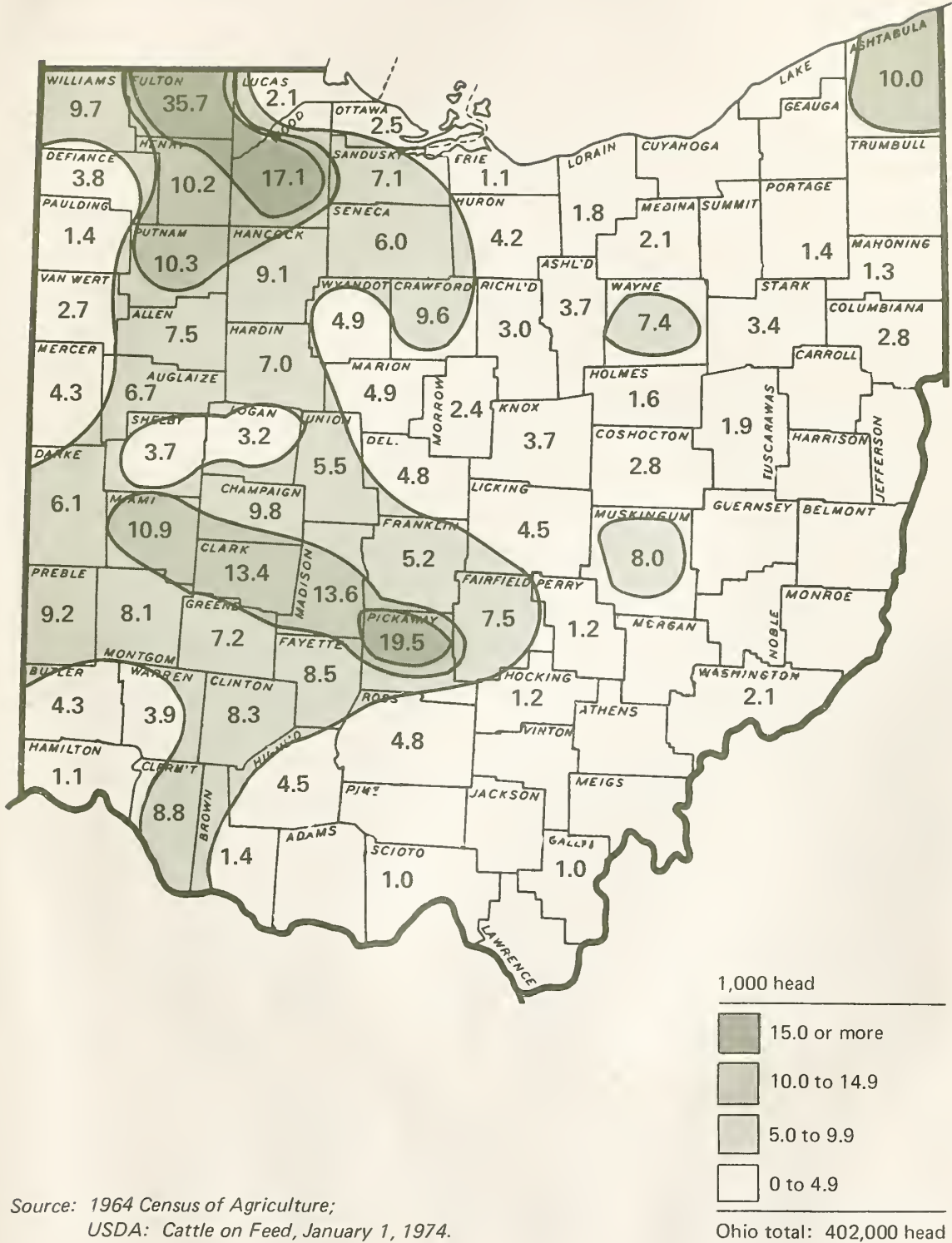
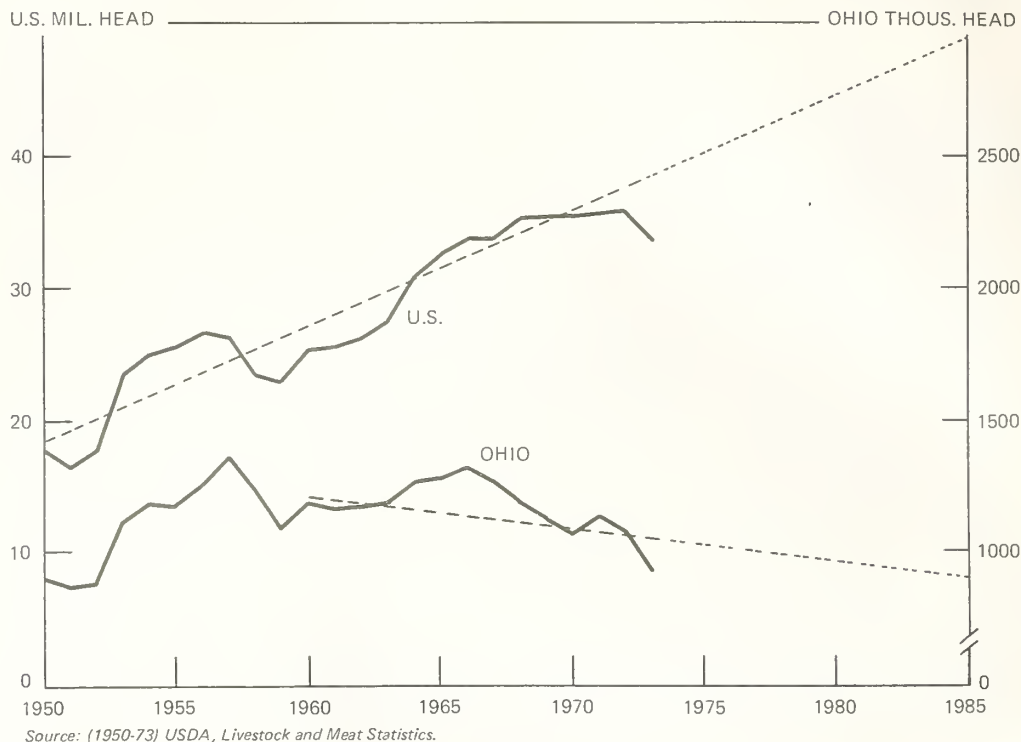


Fig. 18--Commercial cattle slaughter, U.S. and Ohio, 1950-73, and projections for 1985.



slaughter of 47,764,000 head. Cattle production and slaughter at this rate (plus imports amounting to about 8 percent of domestic production) will provide 142 pounds (carcass) of beef per capita for 235,200,000 consumers in 1985.

While such a consumption figure may appear high, compared with 116 pounds per capita in 1972 (110 pounds in 1973), it also appears to be within reason. To reach 142 pounds by 1985, average annual consumption must increase only 1.5 percent for the 16 years from 1970-85. The average annual increase for 1960-70 was 3.1 percent.

Additional support for 142 pounds of consumption also can be found when analyzing the trend in beef cow inventory together with the trends in the dairy cow herd, carcass weights, imports, and veal calf slaughter. An extension of the trend in the beef cow herd gives an estimate of 51,200,000 head by 1985 (fig. 19). In addition, dressed carcass weights can be expected to reach about 648 pounds and beef imports about 2,535,000 pounds (table 5). Live cattle imports, mostly feeder cattle, are expected to add about 1,100,000 head. At the same time, veal-calf slaughter is expected to drop to about 500,000 head by 1985 (fig. 20), and the milk cow inventory is expected to drop to 9,200,000 head (fig. 21). The net result is that beef consumption could be as high as 149 pounds per person by 1985.

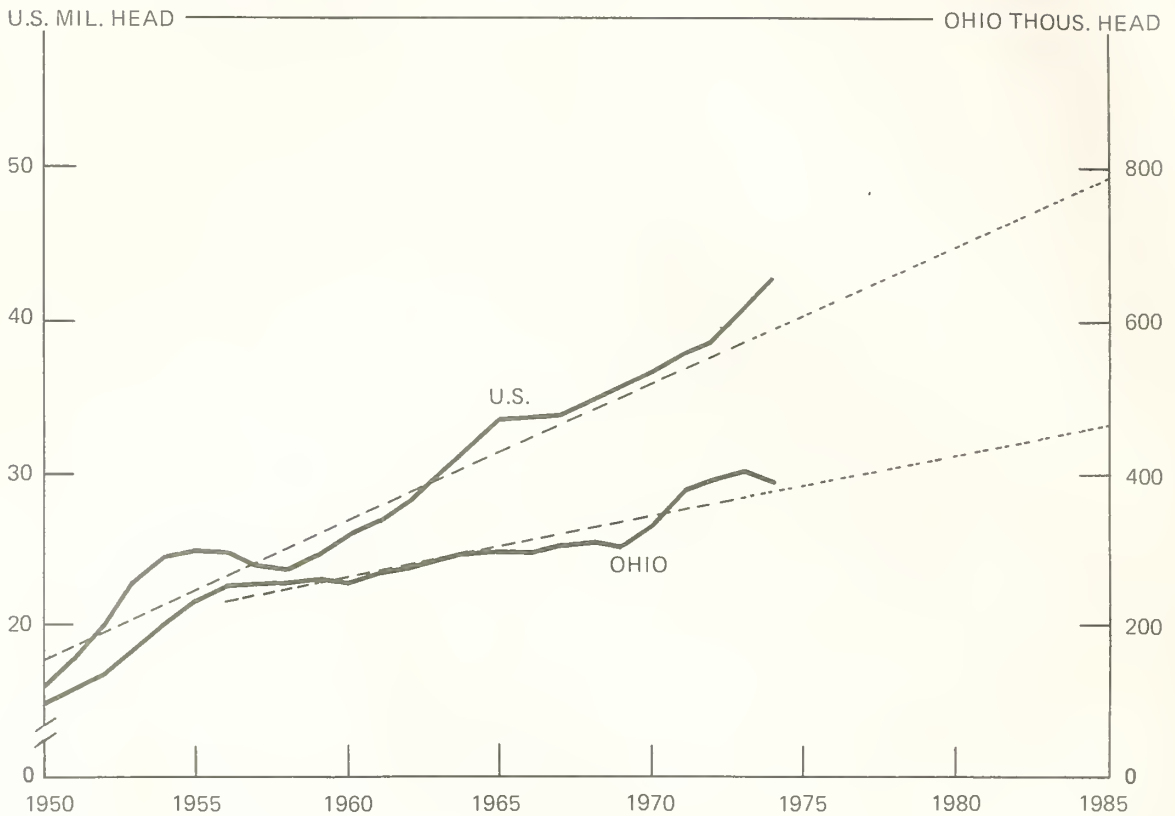
Table 5--U.S. beef production, imports, and consumption, 1950-73, 1985 projected

Year	Commercial slaughter	Dressed weights	Production	Imports	Consumption	
				l/	per person	
	1,000 head	Pounds/head	-----	Million pounds	-----	
					Pounds	
1950	17,901	519	9,248	338	9,529	63.4
1951	16,376	524	8,549	472	8,472	56.1
1952	17,856	525	9,337	429	9,548	62.2
1953	23,605	512	12,055	271	12,113	77.6
1954	25,017	505	12,601	231	12,743	80.1
1955	25,722	515	13,213	229	13,313	82.0
1956	26,862	526	14,090	211	14,121	85.4
1957	26,232	530	13,852	390	14,242	84.6
1958	23,555	552	12,983	896	13,786	80.5
1959	22,930	578	13,233	1,047	14,202	81.4
1960	25,224	571	14,374	760	15,147	85.1
1961	25,635	584	14,930	1,021	15,902	87.8
1962	26,083	574	14,931	1,414	16,326	88.9
1963	27,232	590	16,049	1,651	17,612	94.5
1964	30,818	587	18,037	1,068	18,899	99.9
1965	32,347	568	18,325	923	19,060	99.5
1966	33,727	579	19,493	1,182	20,140	104.2
1967	33,689	592	19,991	1,313	20,793	106.5
1968	35,026	591	20,662	1,500	21,627	109.7
1969	35,237	596	20,960	1,615	22,065	110.8
1970	35,025	615	21,472	1,792	22,926	113.7
1971	35,585	611	21,697	1,734	23,084	113.0
1972	35,779	623	22,218	1,960	23,957	116.0
1973	33,626	628	21,088	1,989	22,812	109.6
1985	48,900	648	31,687	2,535	34,222	145.5

1/ Production and imports do not add to consumption because of inventory changes.

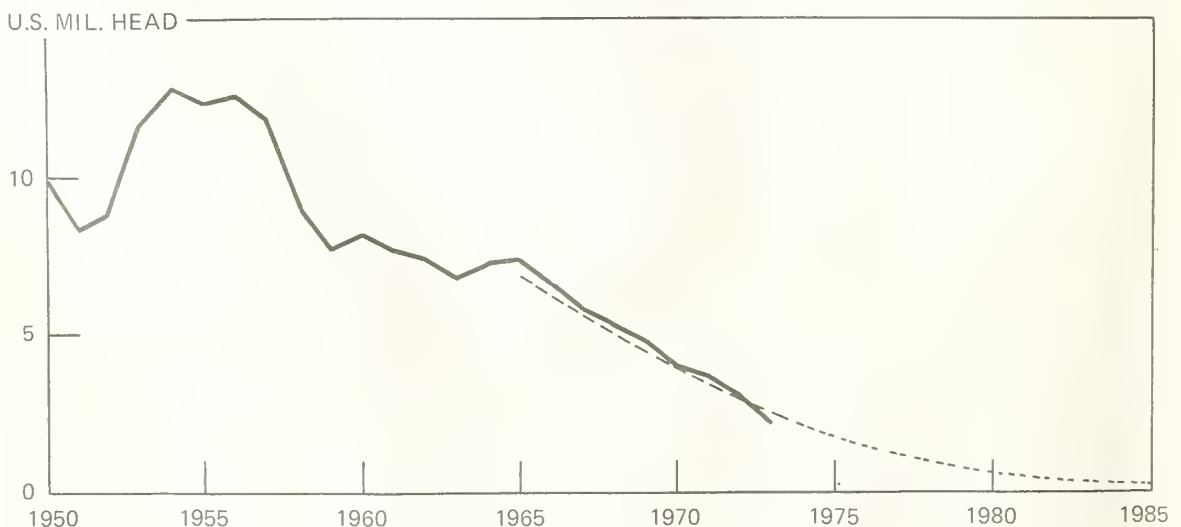
Source: (1950-72) USDA: Livestock and Meat Statistics.

**Fig. 19--Beef cows on farms, U.S. and Ohio, 1950-73,
and projections for 1985.**



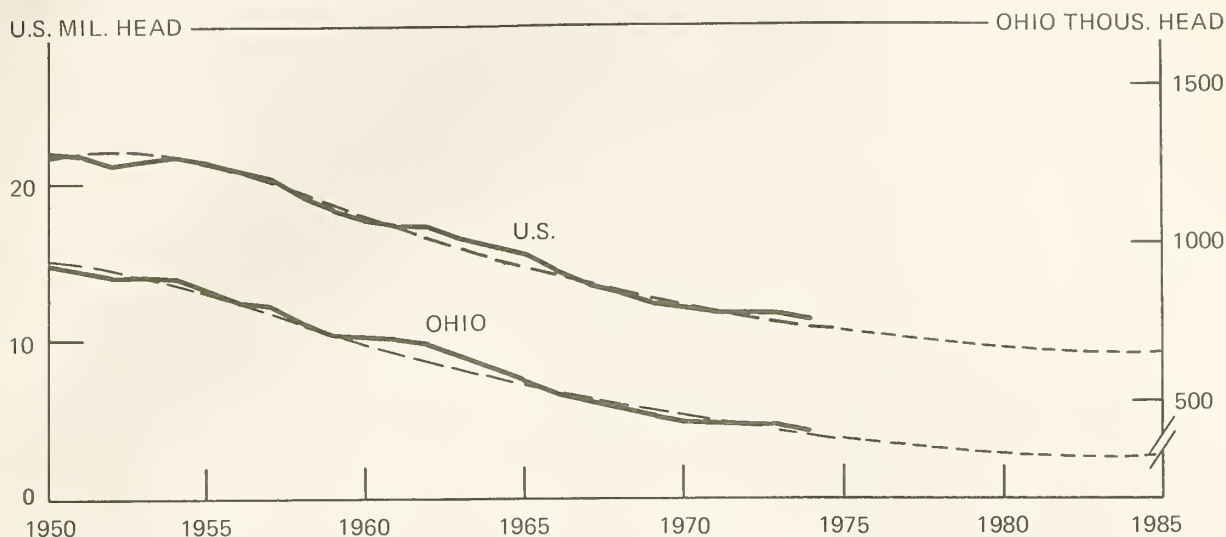
Source: (1950-73) USDA, Livestock and Meat Statistics.

**Fig. 20--U.S. veal-calf slaughter, 1950-73,
and projections for 1985**



Source: (1950-73) USDA, Livestock and Meat Statistics.

**Fig. 21--Milk cows on farms, U.S. and Ohio, 1950-73,
and projections for 1985.**



Source: (1950-73) USDA, *Livestock and Meat Statistics*.

One problem with extending trends for cow inventories and cattle slaughter too far into the future is that they are somewhat divergent. The trends in cow inventories suggest consumption around 149 pounds per person, while the trend in slaughter suggests 142 pounds. To correct the divergence, slaughter is expected to increase more rapidly than its past trend and the beef cow inventory is expected to increase less rapidly than its past trend. By 1985, the milk cow inventory is expected to stabilize at about 9,200,000 head; the beef cow inventory is expected to increase to 49,700,000 head, and slaughter to 48,900,000 head of cattle. Consumption per person is expected to be 143 to 146 pounds. Beef imports greater or less than 8 percent of domestic production could move consumption above or below the estimate by as much as 5 pounds.

Because virtually all cattle produced in the United States are slaughtered there, production and slaughter can be analyzed together to estimate future levels. However, the number of animals produced in Ohio is not necessarily the same as the number slaughtered there. In fact, the two trends are heading in different directions.

Cattle slaughter in Ohio has generally followed the same cycle as for national slaughter except as national trend has been upward, the trend for slaughter in Ohio has been fairly stable to somewhat downward (fig. 18). The percent of U.S. cattle slaughtered in Ohio declined from 5.0 percent in 1950 to 2.7 percent in 1973, and is expected to level off at about 900,000 head, or 1.8 percent of U.S. cattle slaughtered by 1985 (table 6).

Table 6--Commercial cattle slaughter, United States and Ohio,
1950-73, 1985 projected

Year	: U.S. : : slaughter :	: Ohio : : slaughter :	: Ohio as a : percent of U.S. :
	-----1,000 head-----		Percent
1950	17,901	900	5.0
1951	16,376	860	5.3
1952	17,856	874	4.9
1953	23,605	1,115	4.7
1954	25,017	1,194	4.8
1955	25,722	1,173	4.6
1956	26,862	1,250	4.7
1957	26,262	1,303	5.0
1958	23,555	1,188	5.0
1959	22,930	1,087	4.7
1960	25,224	1,186	4.7
1961	25,635	1,153	4.5
1962	26,083	1,165	4.5
1963	27,232	1,189	4.4
1964	30,818	1,252	4.1
1965	32,347	1,270	3.9
1966	33,727	1,311	3.9
1967	33,869	1,259	3.7
1968	35,026	1,180	3.4
1969	35,237	1,123	3.2
1970	35,025	1,066	3.0
1971	35,585	1,126	3.2
1972	35,779	1,064	3.0
1973	33,626	1,919	2.7
1985	48,900	900	1.8

Source: (1950-73) USDA: Livestock and Meat Statistics.

Ohio Cow Herd and Calf Crop

Cattle production in Ohio will continue to depend on the number of cows on farms. The number of beef cows has been increasing at an average rate of 8,000 to 10,000 head per year. By 1985, it is expected to be about 465,000 head, an increase of 20.2 percent from 1974. This increase compares with an expected 15.9 percent increase in the U.S. herd. The Ohio rate of growth is consistent with the 1956-73 trend line in figure 19. Ohio's share of the national herd will drop slightly from 1.0 percent where it stood in the early 1970's to 0.9 percent in 1985 (table 7). Straight-line trends do not seem realistic for dairy herd projections. They would indicate a cow herd of zero in Ohio by 1985 and in the U.S. by 2000. The rapid decline in the dairy cow herd slowed considerably in 1969-73. Increases in milk production per cow along with declining per person consumption will probably result in a continued decline in dairy cow numbers to 1985. At that time, the U.S. dairy cow herd is expected to number 9,200,000 head, a decline of 18.5 percent from 1974. The Ohio herd is expected to number 330,000 head--a decline of 19.9 percent.

Table 8 summarizes the expected increase in beef cows and decrease in dairy cows from 1973 to 1985. The combined result will be 4.6 percent fewer cows on farms. The number of cull cows for slaughter will decline faster than the total cow herd, because beef cows are culled less frequently than dairy cows. However, the number of calves available for sale will increase by 7.1 percent.

The 1985 projections are based on the trend in beef cow and dairy cow inventories derived from the 1954, 1959, 1964, and 1969 Censuses of Agriculture. The trend in relative share of inventories in each county was used to allocate the projected total inventories for the entire State.

Figures 13 and 22 show the density of milk cows for 1973 and 1985. The east-west band of counties in the center of the State will continue to be the major location of milk cows, as the total number of cows continues to decrease from 434,000 to 330,000 head. Concentration of cows will increase in the vicinity of Wayne and Holmes Counties in the east and Mercer and Shelby Counties in the west. In most other areas, the number of milk cows will decrease. The total number of beef cows in Ohio will increase from 399,000 in 1973 to 465,000 in 1985. Figures 14 and 23 demonstrate the relative densities by counties. In general, numbers will intensify more rapidly in southeastern Ohio, especially in a band from Coshocton County to Brown County. Central Ohio counties will increase some while many northwestern counties will have fewer beef cows.

Density of cull cows for slaughter and density of veal calves and feeder cattle for sale will correspond with those of beef and dairy cow inventories. The number of feeder cattle for sale in each county is shown in figure 16 for 1973 and figure 24 for 1985.

Table 7--Beef and dairy cows, Ohio, 1950-74, 1985 projected

Year	Beef cows		Dairy cows	
	<u>1,000 head</u>	<u>Percent of U.S.</u>	<u>1,000 head</u>	<u>Percent of U.S.</u>
1950	96	0.6	952	4.3
1951	116	0.7	932	4.3
1952	135	0.7	914	4.3
1953	166	0.7	914	4.2
1954	200	0.8	905	4.2
1955	227	0.9	869	4.1
1956	251	1.0	825	4.0
1957	254	1.1	808	4.0
1958	254	1.1	760	3.9
1959	259	1.1	715	3.9
1960	253	1.0	708	4.0
1961	265	1.0	700	4.0
1962	273	1.0	686	4.0
1963	284	1.0	652	3.9
1964	293	0.9	620	3.9
1965	295	0.9	583	3.8
1966	295	0.9	542	3.7
1967	301	0.9	515	3.8
1968	308	0.9	489	3.7
1969	302	0.9	462	3.7
1970	330	0.9	448	3.7
1971	375	1.0	444	3.7
1972	390	1.0	439	3.7
1973	399	1.0	434	3.7
1974	387	0.9	412	3.7
1985	465	0.9	330	3.6

Source: USDA: Livestock and Meat Statistics, ("Cows and heifers that have calved," January 1; prior to 1970, "Cows and heifers 2 years and older" were used and adjusted to reflect the new definition.)

Cattle Feeding

Ohio cattle feeding reached a peak in 1965 when 456,000 head were marketed. Since then, the number slowly declined to 402,000 head in 1973, and 400,000 head are expected to be produced in 1985 (fig. 25). Nationally, cattle feeding will continue to increase from 31,170,000 marketed in 1973 (23 States) 16/ to about 41,000,000 in 1985, in response to the rising demand for finished beef. However, the proportion of finished cattle to total cattle slaughter in the United States will not go much higher than 82 percent by 1985. That is about the maximum proportion attainable, given the heretofore-mentioned assumptions about calving rates, culling rates, and herd growth for both beef and dairy cows. Fed cattle marketings of 41 million head is somewhat below the straight-line trend projection of 43 million head (fig. 25).

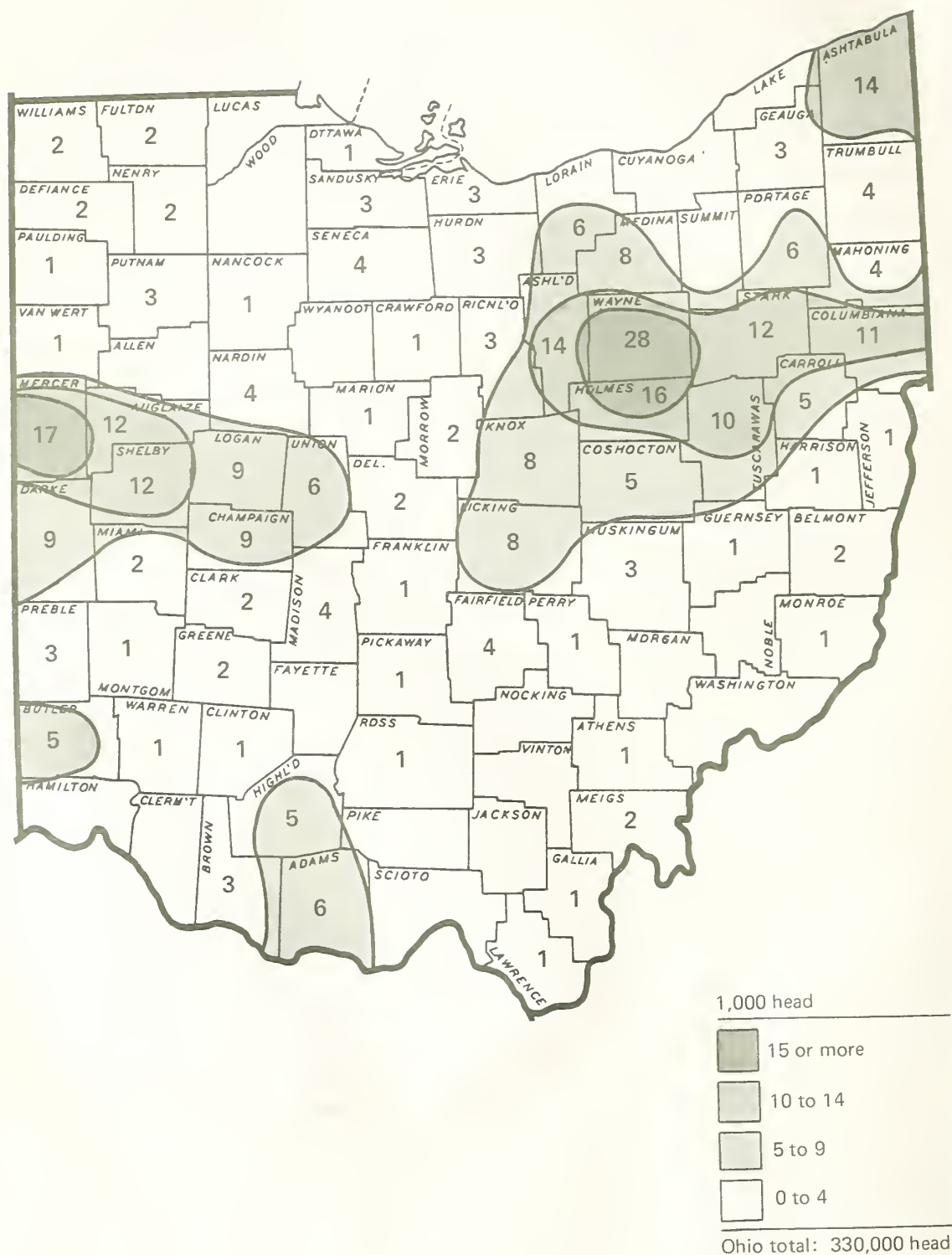
With Ohio cattle feeding relatively stable at around 400,000 head and the beef cow herd increasing to 465,000 head by 1985, there will be fewer imports of beef-type feeder cattle from other States. After

Table 8--Beef production, Ohio, 1973 and 1985 projected

Cows and calves	:	1973	:	1985	:	Changed
		-----Head-----				Percent
Cows on farms, Jan. 1:						
Beef		399,000		465,000		+16.5
Dairy		<u>434,000</u>		<u>330,000</u>		-24.0
Total		833,000		795,000		- 4.6
Cull cows for slaughter: ^{1/}						
Beef		47,900		55,800		+16.5
Dairy		<u>86,800</u>		<u>66,000</u>		-24.0
Total		134,700		121,800		- 9.6
Calves and yearlings for sale: ^{1/}						
Beef		307,500		397,800		+29.4
Dairy		<u>327,300</u>		<u>282,300</u>		-13.8
Total		634,800		680,100		+ 7.1

^{1/} Not adjusted for any change in cow inventory from Jan. 1, 1985, to Jan. 1, 1986.

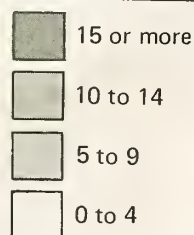
Fig. 22--Milk cows on farms, Ohio, January 1, 1985



Map of Ohio showing 1982 population density by county. The map is divided into counties, each labeled with a number representing population per 1,000 head. The numbers range from 1 to 18. The map includes county names and a scale bar indicating 1,000 head.

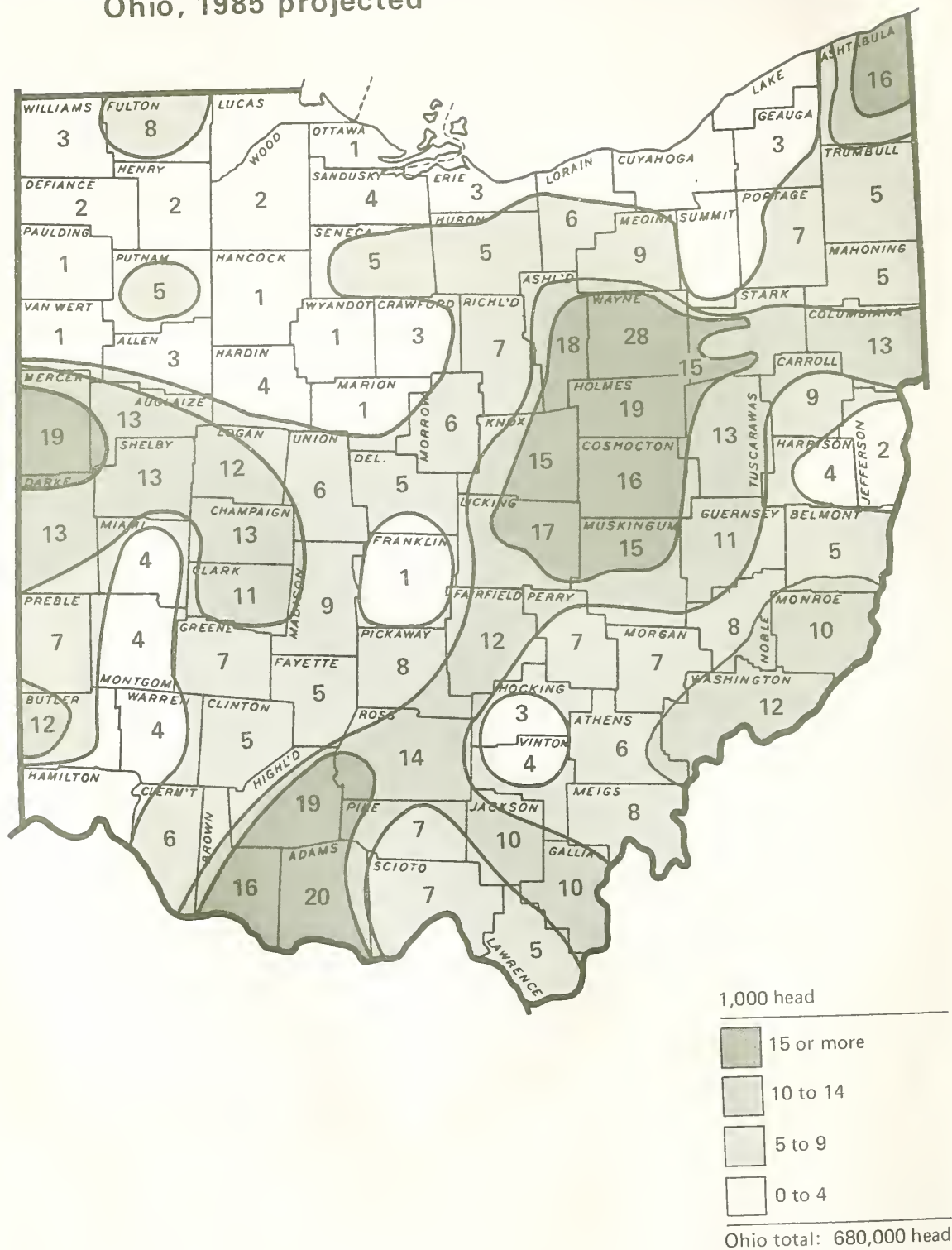
County	Population Density (1982)
Ashtabula	5
Cuyahoga	1
Lake	1
Trumbull	2
Portage	2
Summit	3
Medina	3
Lorain	1
Huron	3
Seneca	1
Sandusky	2
Wood	2
Ottawa	1
Lucas	7
Fulton	2
Williams	2
Henry	3
Defiance	3
Paulding	3
Putnam	1
Hancock	1
Van Wert	4
Allen	3
Mercer	4
Auglaize	4
Hardin	1
Marion	2
Wyandot	1
Crawford	2
Richld	5
Wayne	5
Stark	5
Columbiana	5
Carroll	6
Tuscarawas	6
Harrison	4
Jefferson	1
Belmont	4
Guernsey	12
Muskingum	13
Licking	9
Knox	5
Morrow	5
Franklin	3
Del.	1
Union	1
Logan	5
Shelby	3
Miami	3
Champaign	7
Clark	11
Madison	7
Greene	7
Fayette	6
Pickaway	8
Fairfield	10
Perry	7
Morgan	8
Monroe	11
Noble	9
Washington	14
Athens	7
Meigs	7
Gallia	11
Lawrence	5
Scioto	7
Adams	18
Highld	17
Brown	7
Clermont	7
Warren	4
Montgomery	5
Clinton	5
Butler	10
Preble	6
Darke	7

1,000 head



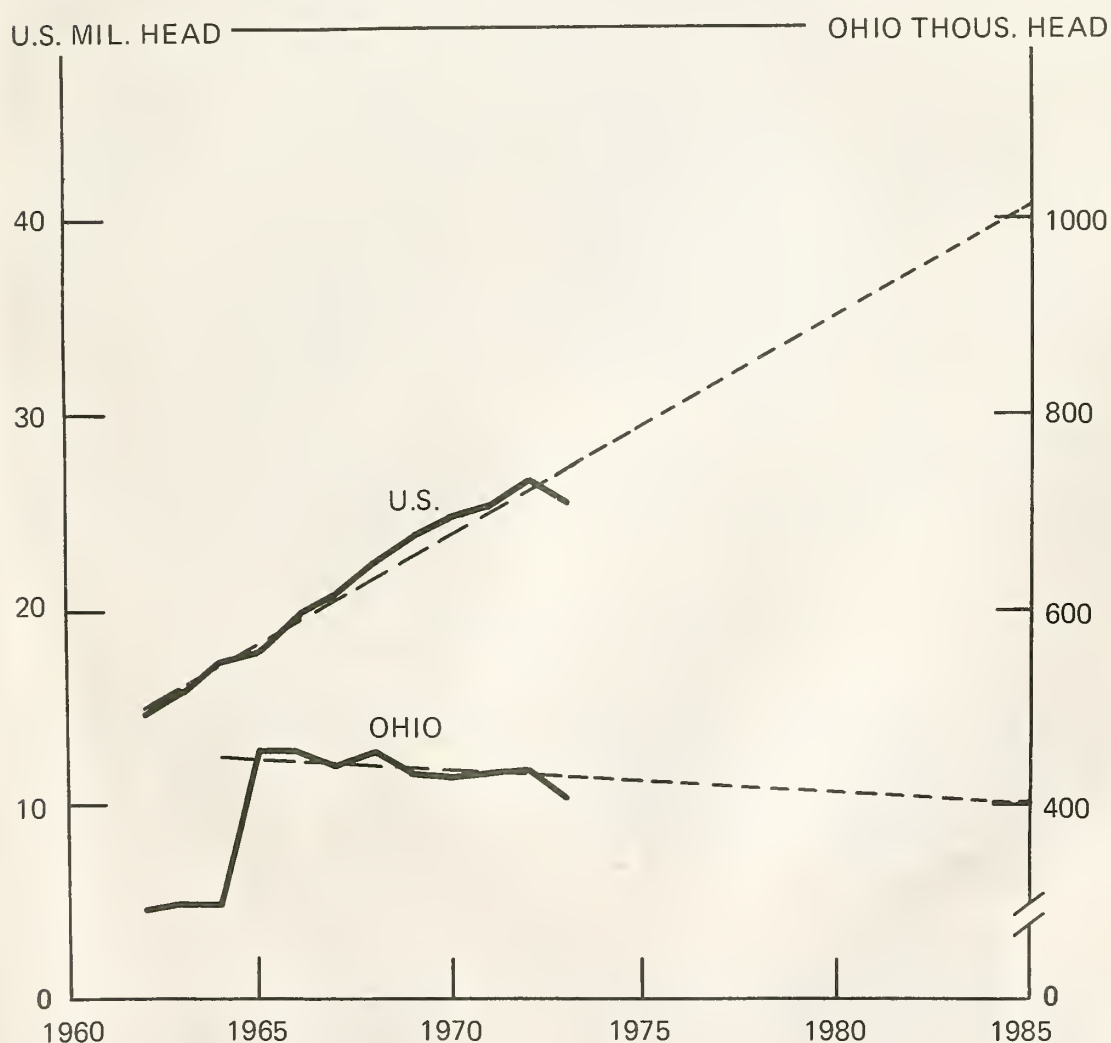
39

Fig. 24--Calves and yearlings to be marketed,
Ohio, 1985 projected



deducting 55,800 replacements from 397,800 beef-type feeder cattle expected to be available (table 8), 342,000 will be left to feed. The balance of the 400,000 placed on feed is likely to come from dairy-type feeder cattle. In fact, there will be a net export of beef and dairy type feeders by 1985. The county-by-county distribution of fed cattle marketings for Ohio in 1985 will be essentially the same as in 1973 when 402,000 head were sold (fig. 17).

Fig. 25--Fed cattle marketed, 23 states and Ohio, 1962-73, with projections for 1985.



Source: (1950-73) USDA, *Livestock and Meat Statistics*.

SHEEP AND LAMB PRODUCTION AND SLAUGHTER

Current Location and Extent of Sheep Enterprises

Ohio has two basic types of sheep enterprises. One is the ewe flock that produces milk-fed (spring) lambs for slaughter, cull ewes for slaughter, and feeder lambs. The second enterprise is lamb feeding that produces fed lambs for slaughter.

The ewe flock is the most common type of sheep enterprise in most counties. Yet a few counties stand out as relatively significant lamb feeders. Because lamb feeding is not reported on a county basis, the relative importance of lamb feeding in each county is estimated by comparing among counties the ratio of number of sheep and lambs sold per ewe. Counties selling more than 1.4 lambs per ewe are considered to be significant lamb feeding counties (fig. 26). Clark, Greene, and Drake counties have the highest ratios, ranging from 1.89 to 2.92. The Ohio average was 1.3. These lamb feeding estimates are for 1964, the last census year in which ewes were reported separately from all sheep on farms on a county basis. SRS reports number of ewes annually on a statewide basis, but not on a county basis.

In 1973, Ohio sold 43,000 slaughter sheep, 323,000 slaughter lambs, and 70,000 feeder lambs (table 9). Because SRS does not report sales between Ohio farmers (mostly feeder lambs), the number of head marketed in table 9 is estimated by subtracting feeder lamb inshipments from total lambs on feed on January 1 of the next year.

Combined sales of sheep and lambs from all types of enterprises were 436,000 head in 1973. They were concentrated in central Ohio--east, west, and north of Columbus (fig. 26). Greene and Knox Counties sold the most sheep and lambs, but they sold only 21,300 and 20,500 head in 1973.

Production Trends and Projections

The last peak in U.S. sheep and lamb production occurred in 1960. Since then, the number of ewes on farms and the number of sheep and lambs slaughtered have been declining. Figures 27 and 28 illustrate the trends from 1950 to 1973 and project for 1985. From 1960 to 1973, number of ewes on Ohio farms declined from 756,000 to 426,000 head. That is a decline of 44 percent and parallels a 46-percent decline for all U.S. farms.

In response to the 46-percent decline in the national ewe flock, the number of sheep and lambs slaughtered in the United States declined by 40 percent from 1960 to 1973. During the same period, Ohio slaughter declined 71 percent. The steep downward trend in Ohio was reversed only briefly from 1965 to 1967 (fig. 28).

Fig. 26--Total sheep and lamb sales, and major lamb feeding areas in Ohio, 1973

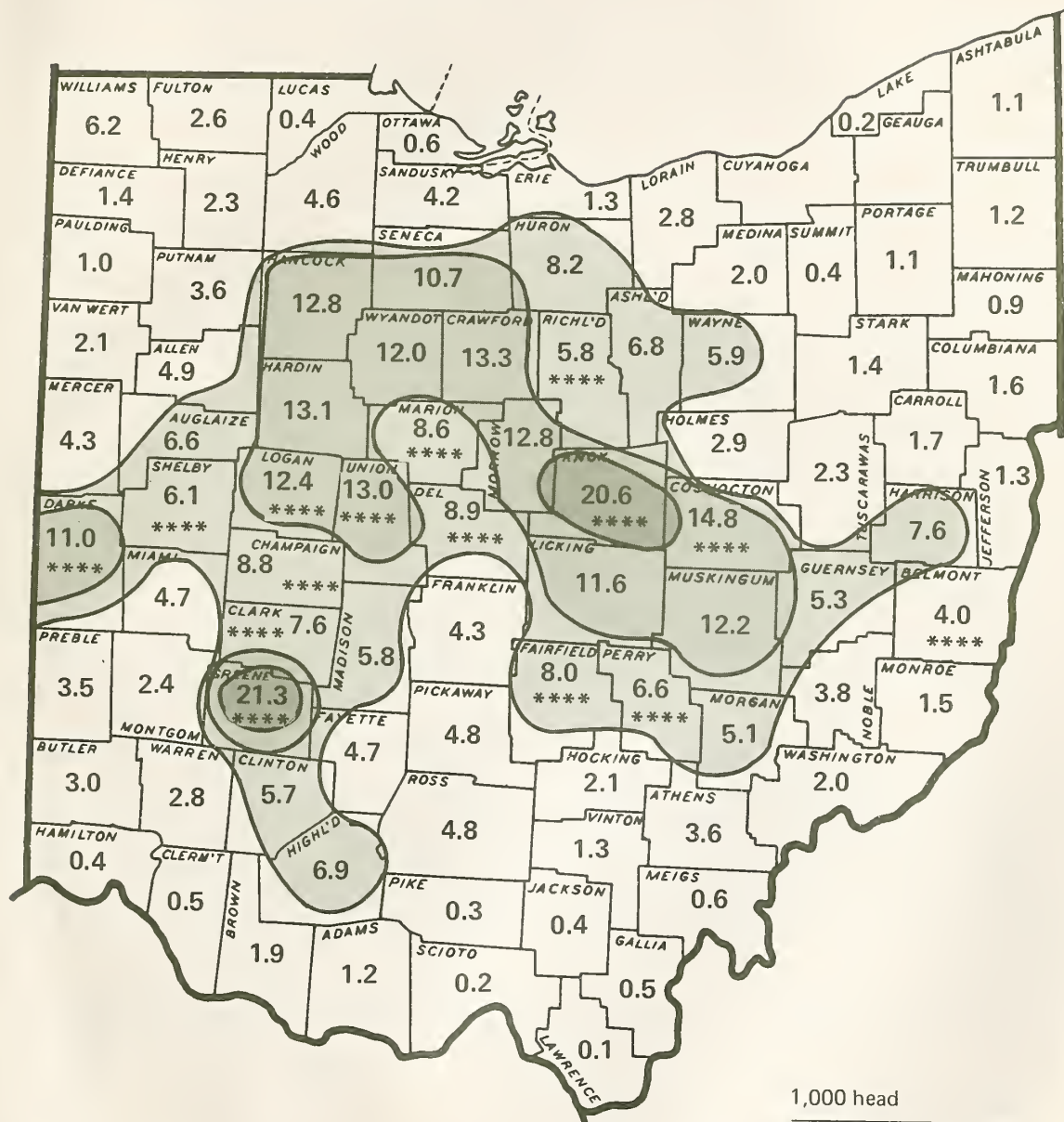


Table 9--Sheep and lamb marketings, lambs on feed, and inshipments, Ohio 1960-73

Year	Marketings <u>1/</u>		Interfarm sales <u>2/</u>			Total marketings <u>4/</u>
	Sheep	Lambs	Lambs on	Lamb	On feed	
			feed	inship-	minus	
			(t+1)	ments <u>3/</u>	inshipments:	
<u>1,000 head</u>						
1960	134	612	--	71	--	--
1961	105	622	198	130	68	795
1962	110	610	172	112	60	780
1963	81	599	146	114	32	712
1964	41	554	131	123	8	603
1965	65	494	120	104	16	575
1966	51	435	136	62	74	560
1967	43	426	131	52	79	548
1968	40	417	127	51	76	533
1969	42	405	114	53	61	508
1970	46	383	112	43	69	498
1971	43	366	108	27	81	490
1972	52	389	104	38	66	507
1973	43	323	91	21	70	436

1/ "Sheep and lamb marketings" exclude interfarm sales of feeder lambs within Ohio.

2/ Interfarm sales are estimated by: "lambs on feed" Jan. 1 of the next year (t+1) less "lamb inshipments" in the current year (t).

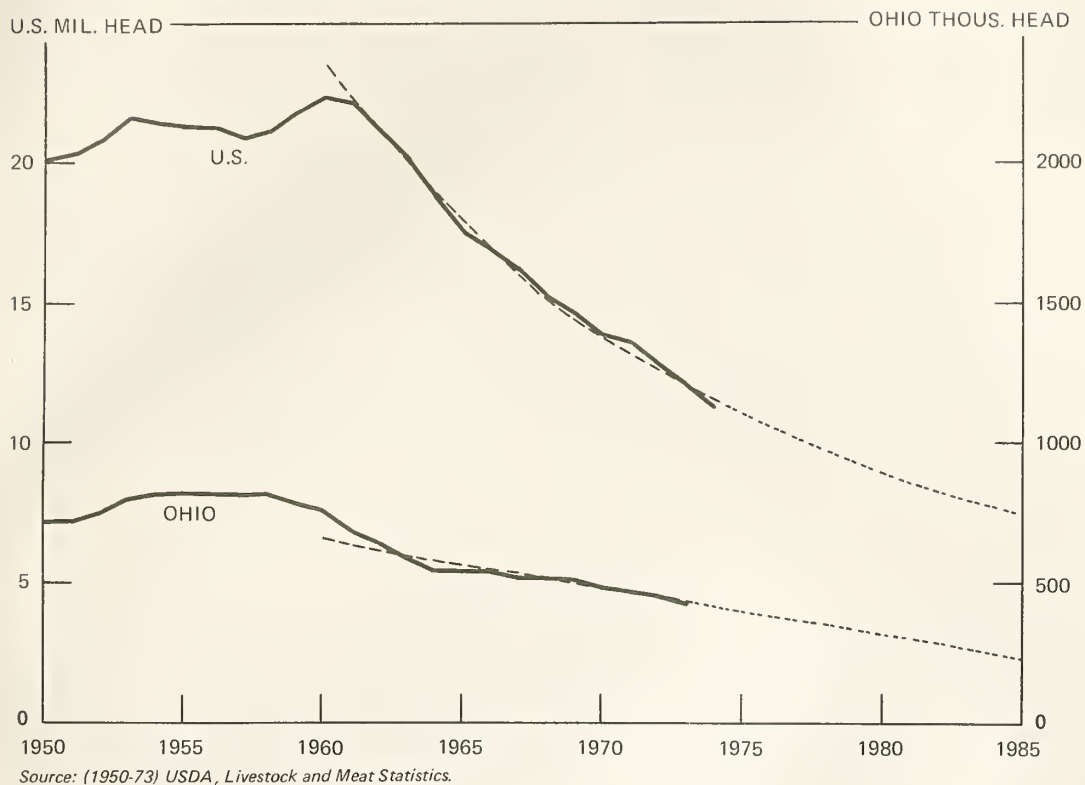
3/ "Lamb inshipments" are estimated to be 90% of total inshipments based on a 1960-64 average when sheep and lamb inshipments were reported separately.

4/ Total sales are estimated to be sheep and lamb marketings plus interfarm sales.

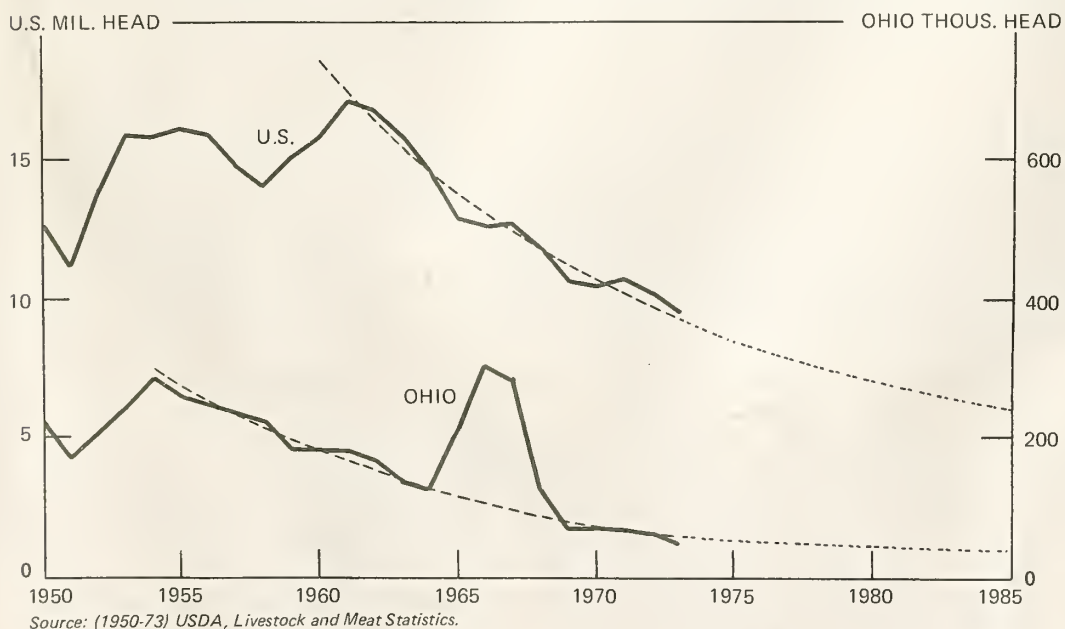
-- = not applicable.

Source: USDA: Livestock and Meat Statistics; Sheep and Lambs on Feed.

**Fig. 27--Ewes on farms, U.S. and Ohio, 1950-73,
and projections for 1985.**



**Fig. 28--Commercial sheep and lamb slaughter,
U.S. and Ohio, 1950-73, and projections for 1985.**



The number of lambs on feed in Ohio decreased rapidly. From January 1, 1962 to January 1, 1973, the number of lambs on feed declined from 198,000 to 104,000--a drop of 48 percent. Inshipments of feeder lambs declined from 112,000 to 20,000--a decrease of 82 percent. Table 10 shows where the inshipments of sheep and lambs came from in 1970-73. Feeder lambs are estimated to constitute 90 percent of these inshipments.

Table 10--Sheep and lamb inshipments, Ohio, 1970-73

State of origin	: 1970	: 1971	: 1972	: 1973
	<u>1,000 head</u>			
Montana	2.3	6.0	14.4	4.3
Wyoming	24.0	12.4	9.9	5.0
Illinois	2.2	.6	4.7	--
Pennsylvania	1.8	2.5	3.5	2.3
Indiana	.6	.4	2.2	1.4
West Virginia	2.2	1.2	2.1	1.1
Minnesota	.7	.3	1.0	--
Texas	--	--	--	4.4
Other States	14.2	<u>6.6</u>	<u>4.2</u>	<u>4.5</u>
Total	48.0	30.0	42.0	23.0

Source: Ohio Crop Reporting Service.

The long-term outlook for the sheep industry is uncertain. The trend from 1960 to 1973, and even from before, indicates a continuing decline in sheep production. If these trends continue, the national ewe flock in 1985 is expected to number 7,500,000 head, 67 percent less than in 1960. The Ohio ewe flock is expected to number 225,000 head, 70 percent less than in 1960. The result would be about 300,000 sheep and lambs sold in Ohio in 1985.

On the other hand, depressed cattle prices, beginning in the fall of 1973 and likely to extend on into the next several years, have made sheep more attractive relative to cattle. However, the change in the price of lamb relative to the price of feeder cattle is not likely to bring a permanent turnaround in the sheep cycle. A turnaround is going to require some major breakthroughs in sheep production such as 1.5 or more lambs saved per ewe and the production and acceptance of heavier, more meaty lambs weighing about 130 pounds.

LIVESTOCK MARKETING AND SLAUGHTERING SERVICES

Feeder and slaughter livestock are marketed in Ohio, as in other States, by several different methods. USDA publishes data on the methods by which packers obtain slaughter livestock. These are reported as "terminals," "auctions," and "direct." The "direct" category is a catchall and is somewhat of a misnomer because it includes the activities of dealers and order buyers who act as agents between the producer and packer. Direct marketing also includes sales direct from the producer to a packer buyer at the farm, at a buying station, or at the slaughtering plant.

Feeder livestock are also sold by terminal, auction, and direct methods, but information is not as available as for slaughter livestock. The multiple handling of feeder livestock compounds the problems of analysis.

Terminal Markets

Table 11 shows that the relative use of U.S. terminal markets for marketing slaughter livestock declined from 1923 to 1973. The percent of livestock handled by terminals declined in the 1930's as local auction markets began to increase in number. The use of terminals declined rapidly during the 1960's as direct methods became popular.

The last remaining terminal market in Ohio, the Cincinnati Union Stockyards, stopped operating as such for hogs in October 1974. It continues as a terminal for cattle and sheep. Ohio packers obtained 33 percent of their cattle and 19 percent of their hogs from terminal markets in 1973 (table 11). Most of this livestock came from out-of-State markets.

Auction Markets

U.S. auction markets accounted for 12 to 15 percent of slaughter livestock marketings in 1973--about the same as terminals. Auctions have maintained a relatively stable share of the U.S. livestock market (table 11).

In Ohio, auctions handle a much larger percent of slaughter cattle and sheep than they do nationally. While the data in table 11 are for packer purchases, one would not expect the use of auctions by Ohio farmers to be appreciably different.

Auctions are much more popular for feeder livestock, especially feeder cattle and feeder pigs, than for slaughter livestock. For

Table 11--Distribution of packer livestock purchases by market outlet, United States and Ohio, selected years, 1923-73

Year	Terminals				Auctions				Direct or country dealers 1/			
	Cattle	Hogs	Sheep and lambs		Cattle	Hogs	Sheep and lambs		Cattle	Hogs	Sheep and lambs	
Percent												
United States:												
1923	89.6	76.0	85.4		n.a.	n.a.	n.a.		10.4	24.0	14.6	
1930	88.2	59.9	84.7		n.a.	n.a.	n.a.		11.8	40.1	15.3	
1940	75.8	46.7	63.8		n.a.	n.a.	n.a.		24.2	53.3	36.2	
1950	74.9	39.9	57.4		n.a.	n.a.	n.a.		25.1	60.1	42.6	
1960	45.8	30.3	35.4		15.6	8.7	10.6		38.6	61.0	54.0	
1961	42.3	29.2	36.8		19.7	11.2	10.9		38.0	59.6	52.3	
1962	42.6	29.3	35.4		18.8	11.1	15.2		38.6	59.6	49.4	
1963	39.1	26.6	30.0		17.8	12.7	14.0		43.1	60.7	56.0	
1964	36.5	23.8	28.6		18.9	13.1	13.7		44.6	63.1	57.7	
1965	34.0	23.4	25.5		20.9	13.7	12.1		45.1	62.9	62.4	
1966	31.0	22.1	21.9		19.8	15.2	13.5		49.2	62.7	64.6	
1967	28.7	18.8	19.0		18.2	15.5	16.2		53.1	62.7	64.8	
1968	24.7	19.3	18.6		18.3	14.1	15.0		57.0	66.6	66.4	
1969	21.2	18.9	16.1		17.0	13.7	13.1		61.8	67.4	70.8	
1970	18.4	17.1	15.1		16.4	14.3	12.4		65.3	68.5	72.5	
1971	15.9	16.9	13.6		15.5	13.8	12.3		68.6	69.3	74.0	
1972	13.2	16.3	13.7		14.6	13.3	12.0		72.2	70.4	74.3	
1973	11.9	17.3	12.3		15.1	12.4	14.7		73.0	70.3	73.0	
Ohio:												
1973	33.3	19.0	21.6		32.4	19.1	56.8		34.4	61.9	21.6	

1/ Includes auctions, direct or country dealers, and other outlets for 1923-50. Auction market purchases were not significant until about 1940.
n.a. = not available.

Source: Gerald Engelman and others. The Lamb Industry: An Economic Study of Marketing Structure, Practices, and Problems, USDA: Packers and Stockyards Administration Research Report No. 2, May 1973, p. 17; USDA: Packers and Stockyards Administration, Resume, Dec. 14, 1973, Dec. 27, 1974.

example, a study 17/ of southeastern Ohio feeder calf producers shows that 88 percent of feeder calves are sold through auctions. Only 8 percent are sold direct to other farmers, leaving 4 percent for dealers and other methods. About 20 percent of feeder pigs sold in Ohio are sold in special graded sales by auction procedures. Many other pigs are also sold by auction.

Auction markets in Ohio are located throughout the livestock producing areas of Ohio as shown in figure 29. In the spring of 1974, 44 auction markets in Ohio were registered with the Packers and Stockyards Administration (USDA). 18/

Dealers and Order Buyers

In April 1972, 248 firms in Ohio were registered as dealers or order buyers. 19/ The total included 29 auction markets and 5 commission firms that were also registered as dealers. Many dealers have buying stations where producers can bring their livestock, and transactions are often made at the buying station. Other transactions are made on farms or at local auctions.

Packers, Packer-Buyers, and Buying Stations

Most packers use a variety of methods to procure slaughter livestock so as not to be dependent on any one method or company. At least some of the purchases are made by a packer's own buyer on the farm, at a buying station, auction market, or at the packing plant. The number of packers in Ohio and surrounding States is a major concern of Ohio livestock producers. As plants open or close, producers are losing or gaining market outlets, either for direct sales or for sales through various agents.

In 1970, there was a total of 228 slaughtering plants in Ohio: 210 plants slaughtered cattle, 172 slaughtered hogs, and 128 slaughtered sheep (table 12). From 1955 to 1970, the number of plants declined only 7 percent, but future declines are expected to be more rapid. Most of the remaining plants are small, old, and obsolete. While the plants are well depreciated and can continue to cover variable costs and make a return to fixed costs on a relatively small margin, they are also subject to closing at any time. They close when they can no longer meet health inspection standards or when the primary owner-operators cease to operate the plant. Many national packers have left the eastern United

17/ Henderson, Dennis R., and others. Feeder Calf Production and Marketing Patterns in Southeast Ohio. Ohio State University Cooperative Ext. Serv. Bul. MM-344. July 1974. p. 30.

18/ USDA: Packers and Stockyards Administration.

19/ USDA: Packers and Stockyards Administration.

States to relocate closer to the center of livestock production west of the Mississippi River where they have built large efficient single-species plants.

A better measure of the slaughter situation is the number of federally inspected plants. These plants are generally larger than average and can handle truckload lots of livestock from an efficient marketing system. These packers can trade across State lines, thereby putting them in a stronger marketing position than nonfederal plants. The total number of federally inspected plants in Ohio increased from 29 to 39--an increase of 54 percent--from 1955 to 1970. Most of the

**Fig. 29--Terminal and auction markets in Ohio,
May 1974**



Source: USDA: Packers and Stockyards Administration.

Table 12--Slaughtering establishments, Ohio, 1955, 1960, 1965, and 1970
(Numbers in parentheses are single-species plants.)

Year	All plants 1/			Federally inspected plants				
	Cattle & calves :	Hogs :	Sheep & lambs :	Total :	Cattle & calves :	Hogs :	Sheep & lambs :	Total :
	<u>Number of plants</u>							
1955	232(37)	170(11)	117(1)	245(49)	27(10)	12(1)	15(1)	29(12)
1960	218(41)	167(16)	109(3)	238(60)	27(13)	15(4)	11(1)	32(18)
1965	212(38)	168(17)	84(1)	231(56)	28(15)	18(6)	9(0)	35(21)
1970	210(29)	172(17)	128(1)	228(47)	26(16)	20(12)	6(1)	39(29)

1/ All plants slaughtering 300,000 pounds live weight or more annually.

Source: USDA Statis. Rptg. Serv. Number of Livestock Slaughter Plants. March 1, 1955, 1960, 1965, 1970.

increase was in plants slaughtering hogs (table 12). Increases in numbers do not usually mean that new plants were constructed, but that existing plants were improved to meet Federal inspection standards.

Slaughter plants are generally becoming more specialized both nationally and in Ohio. The number of Federal plants in Ohio specializing in hogs increased from 1 to 12. The number specializing in cattle increased from 10 to 16 plants. Only one plant continued to specialize in sheep and lamb slaughter over most of the 15-year period.

Table 13 shows the number of federally inspected plants and other plants in the Eastern North Central and North Atlantic Regions, which include all States from Wisconsin and Illinois to Maryland and northward to Maine. The livestock raised in Ohio is usually slaughtered somewhere in this combined region. The change in numbers of slaughter plants in the entire region is similar to that of Ohio. The number of "all plants" decreased only 5 percent, while the number of federally inspected plants increased 14 percent. The location of all federally inspected plants in the two regions in 1970 is shown in figure 30.

From 1970 to 1973, Ohio lost five Federal plants and gained two plants as follows:

Additions

Springfield
Xenia

Deletions

Canton
Cincinnati
Creston
Dayton
Kent

In 1973, there were 36 federally inspected plants, about 10 major State inspected plants, and 4 packer buying stations in Ohio (fig. 31).

A special note must be made concerning the competition for sheep and lambs for slaughter. Because the industry is relatively small, there are very few slaughtering plants effectively competing for sheep and lambs. In fact, only 31 plants in the United States were slaughtering 100,000 head or more per year and only 7 of these were east of the Mississippi River in 1970. Although 6 federally inspected plants were slaughtering sheep and lambs in Ohio in 1970, only 1 was specialized and none slaughtered 100,000 head or more per year. Only 15 percent of the sheep and lambs produced in Ohio was also slaughtered in the State. On top of these statistics, it is known that two packers bought 51 percent of all the sheep and lambs in the Ohio-Indiana area and four packers bought 79 percent. 20/

20/ Gerald Engelman, and others. The Lamb Industry: An Economic Analysis of Marketing Structure, Practices, and Problems, U.S. Dept. Agr. Packers and Stockyards Admin. Res. Rpt. 2. May 1973, pp. 23, 113.

Table 13--Slaughtering establishments, North Central-Eastern and North Atlantic Regions, 1/
1955, 1960, 1965, and 1970
(Numbers in parentheses are single-species plants.)

Year	All plants <u>2/</u>			Federally inspected plants		
	Cattle & : calves :	Hogs :	Sheep & : lambs :	Cattle & : calves :	Hogs : lambs :	Sheep & : lambs : Total
	<u>Number of plants</u>					
1955	1369(317)	935(83)	590(5)	1460(405)	92(21)	85(1) 187(72)
1960	1277(294)	906(84)	558(5)	1369(383)	81(25)	78(1) 204(105)
1965	1128(251)	823(86)	501(6)	1221(343)	88(32)	69(2) 202(113)
1970	1347(191)	1077(71)	760(3)	1421(265)	96(43)	74(3) 213(121)

1/ North Central-Eastern: Ohio, Indiana, Illinois, Michigan, Wisconsin; North Atlantic: New England, New York, New Jersey, Pennsylvania, Maryland, Delaware.

2/ All plants slaughtering 300,000 pounds or more live weight annually.

Source: USDA: Statistical Rptg. Serv. Number of Livestock Slaughter Plants. March 1, 1955, 1960, 1965, 1970.

**Fig. 31--Major packers and packer buying stations,
Ohio, 1973**



Source: USDA: Packers and Stockyard Administration and Animal Plant Health Inspection Service

Summary and Implications Concerning the Market Situation

Livestock producers in Ohio are currently served by several alternative livestock marketing firms for buying and selling feeder and slaughter animals. Scattered throughout the State are 1 terminal market, 44 auction markets, and about 250 dealers and order buyers. The State also has 4 packer buying stations, 36 federally inspected slaughtering plants, and 10 major State inspected plants. In addition, there are more than 200 smaller slaughtering plants in the State and several other plants in neighboring States.

A number of marketing and slaughtering firms have ceased to operate in Ohio because they have obsolete facilities or lack sufficient volume. These two factors result in relatively high unit costs that make the firms unprofitable. Producers often lament the passing of an established marketing or slaughtering firm because it means less competition for livestock. On the other hand, it allows the remaining firms to operate more efficiently and thereby enables them to bid higher prices.

Many market facilities operating in Ohio are no longer needed because livestock can move directly to a feeder or a slaughterer. Larger farms will make direct movements even more practical in the future. More of the coordination will be done by telephone, tele-auction, computer, contracts, and other mechanisms instead of the familiar face-to-face spot transaction. Marketing firms that do survive in the future will have to handle larger volumes from a much broader geographic area and do less physical handling of the product than most local firms currently handle.

Many existing slaughter plants operate on a small scale with inefficient processing and distribution methods. A modern single-species plant must be designed to kill and merchandise more than 300,000 head of cattle, 750,000 head of hogs, or 1 million head of sheep and lambs to achieve most of the economies of modern processing technology and marketing. On that scale, Ohio would require only about two cattle plants, four hog plants, and one-half sheep plant to handle the equivalent of all the State's production in 1973.

Producers have a large stake in the vitality of their industry if they desire to continue livestock enterprises. It behooves them to take some action to make the entire production-processing-distribution system efficient and at the same time to yield benefits to producers. Producers could accomplish their goals through three basic cooperative approaches:

- (1) Establish a modern competitive market such as a multi-State telephone or teletype auction. A similar system also could be used for trading feeder livestock.

- (2) Form a bargaining association to negotiate supply contracts with packers. The association also would contract with individual producers.
- (3) Operate cooperative slaughter-processing plants, contracting with producers to assure efficient use of facilities and coordination of the system.

Livestock enterprises are feasible in Ohio but an efficient production-processing-distribution system requires a large volume of livestock. Any of the above three approaches should be backed by an educational program to turn around the downward trend in hog and cattle finishing in Ohio. New livestock educational programs and marketing systems need to be aimed at the growing number of part-time farmers with full-time off-farm jobs as well as those that farm on a full-time basis.

OTHER PUBLICATIONS AVAILABLE

Expansion Possibilities for the Livestock Feeding and Beef Packing Industry in Montana. Winston K. Ullman, 1974. Service Report 140, 34 pp.

Farmer Cooperative Service. What It Does--How It Works. 1974. Information 95, 2-fold.

Legal Phases of Farmer Cooperatives. D. Morrison Neely, revised 1975.

Livestock Industry Trends. G. Alvin Carpenter, 1973. Information 92, 34 pp.

Livestock Cooperatives in the Southeast. John T. Haas, 1970. Research Report 13, 32 pp.

How to Start a Cooperative. 1965. Educational Circular 18, 18 pp.

For copies, write Farmer Cooperative Service, U.S. Department of Agriculture, Washington, D.C. 20250.



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